DOCUMENT RESUME

ED 429 573 IR 019 534

AUTHOR	Clark, W. Bruce
TITLE	Professional Development for Teaching Technology across the Curriculum: Best Practices for Alberta School Jurisdictions.
INSTITUTION	Alberta Dept. of Education, Edmonton.
ISBN	ISBN-0-7785-0351-8
PUB DATE	1999-02-00
NOTE	77p.; A publication of the School Technology Task Group. For the Interim Program of Studies, see ED 422 901.
AVAILABLE FROM	Learning Resources Distributing Centre, 12360-142 St., Edmonton, Alberta, Canada T5L 4X9; Tel: 780-427-5775; Fax: 780-422-9750; Web site: http://ednet.edc.gov.ab.ca/technology/
PUB TYPE	Reports - Evaluative (142)
EDRS PRICE	MF01/PC04 Plus Postage.
DESCRIPTORS	Computer Uses in Education; Educational Environment; Educational Planning; Educational Practices; Elementary Secondary Education; Foreign Countries; *Information Technology; *Inservice Teacher Education; Mentors; Models; *Professional Development; Program Development; Program Implementation; Role; Social Influences; Staff Development; Teacher Motivation; Training; Workshops
IDENTIFIERS	Alberta; *Technology Integration; Visioning

ABSTRACT

This report focuses on promising practices in professional development as they relate to implementation of Alberta Education's 1998 "Information and Communication Technology, Interim Program of Studies." The first chapter examines fundamental issues, challenges some assumptions, and offers suggestions related to professional development and information technology. Professional development and growth planning are addressed in the second chapter, including forms that can be used in a structured approach to developing a professional growth plan; a more holistic approach, "vision building," is also defined, and an example of a vision building model is given. The third chapter focuses on the institutional face of professional development, discussing roles of professional developers, formats for professional development, mentoring, a functional model of professional development, the four catalytic functions of the model (stimulating interest, facilitating skill building, facilitating script building, dissemination), and technology within professional development. Critical success factors are discussed in the fourth chapter, including social factors (communication, social interaction), motivational factors (learning styles, self-confidence, relevance, incentives), and other environmental factors (time, school facilities/equipment, funding, technical support). Descriptions of 20 successful professional development workshops and projects are appended, as well as a list of related Alberta Education resources. (AEF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 429 573

SCOPE OF INTEREST NOTICE

The ERIC Facility has assigned this document for processing to: IR

In our judgment, this document is also of interest to the Clearinghouses noted to the right. Indexing should reflect their special points of view. SP

PROFESSIONAL DEVELOPMENT FOR TEACHING TECHNOLOGY ACROSS THE CURRICULUM

Best Practices
For Alberta School Jurisdictions

February, 1999

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

C. Andrews

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Alberta
EDUCATION

IR019534

BEST COPY AVAILABLE

ALBERTA EDUCATION CATALOGUING IN PUBLICATION DATA

Alberta. Alberta Education.
Professional development for teaching technology across the curriculum : best practices for Alberta school jurisdictions.

Available on the Internet: http://ednet.edc.gov.ab.ca/technology/
ISBN 0-7785-0351-8

1. Educational technology - Alberta. 2. Teachers - In-service training - Alberta. I. Title.

LB1028.3.A333 1998 371.39445

Additional copies are available through:

Learning Resources Distributing Centre
12360–142 Street
Edmonton, Alberta, Canada T5L 4X9
Telephone: 780–427–5775
Facsimile: 780–422–9750

For more information, contact:

Bonnie Brooks
School Technology Task Group
Alberta Education
11160 Jasper Avenue
Edmonton, Alberta, Canada T5K 0L2
Telephone: 780-427-9001
Facsimile: 780-415-1091

To be connected toll free outside Edmonton, dial 310-0000.

The primary intended audience for this framework is:

Administrators	✓
Counsellors	
General Audience	
Information Technologists	✓
Parents	
Students	
Teachers	✓

Copyright © 1999, the Crown in Right of Alberta, as represented by the Minister of Education. Alberta Education, School Technology Task Group, 11160 Jasper Avenue, Edmonton, Alberta, Canada, T5K 0L2.

Permission is given by the copyright owner to reproduce this document, or any part thereof, for educational purposes and on a nonprofit basis.

PREFACE

Educational technology has begun to play a powerful role in the movement to transform education in Alberta:

- Alberta Education has published *Learner Outcomes in Information and Communication Technology, ECS to Grade 12: A Framework* (October 1997).
- Alberta's School Act has been amended to underline the importance of including technology knowledge, skills and attitudes in the curriculum (April 1998).
- *Information and Communication Technology* (ICT), *Kindergarten to Grade 12: An Interim Program of Studies* has been released, with provincial implementation of the ICT Program of Studies planned for September 2000.

Teaching technology across the curriculum promises to be challenging, but the benefits will definitely be worth the effort. Professional development, which will be a vital and essential ingredient of this initiative, should be based on these principles:

- Professional development for teaching technology is still *professional development.*
- Professional development resources must be essentially "practical" but well grounded in theory.

ACKNOWLEDGMENTS

This document was prepared during the winter and spring of 1998 at the University of Calgary in the context of a graduate course on instructional development. The development team comprised experienced educators who share a wealth of classroom experience, not to mention experience as technology co-ordinators and professional developers.

I applaud the effort team members put forth during the project and the challenging discussions which informed their work. With gratitude, I acknowledge the following people as co-authors:

Craig Barabash
William Bell
Randy Flemmer
Eva Fritsch
Noel Jantzie
Dean Jarvey
Keith Johnson
Dulcie Jones
Georgina Kiraly
Sue Konopnicki
Annette Krawec
Janice Kyllo
Linda O'Neill
Jody Sawchuck
Doug Stretch
Duncan White
Ed Wozniak

In Appendix A you will find summaries of professional development initiatives associated with teaching technology. We are indebted to all those who volunteered to share their good work.

I acknowledge as well the wisdom and guidance I received from members of the project steering committee.

— W. Bruce Clark

Alberta Education wishes to acknowledge the contributions of the following individuals.

PROJECT DIRECTOR

Jacqueline Skytt	Alberta Teachers' Association

STEERING COMMITTEE

Doug Knight	Alberta Education
Jacqueline Skytt	Alberta Teachers' Association
David Young	College of Alberta School Superintendents

AUTHOR(S)

W. Bruce Clark	University of Calgary

SCHOOL TECHNOLOGY ADVISORY COUNCIL MEMBERS DURING DEVELOPMENT

John Travers (Chair)	Alberta Education
Peter Balding	Black Gold Regional Division No. 18
Marika Bourque	Calgary School District No. 19
Bonnie Brooks	Alberta Education
George Buck	Universities Co-ordinating Council
David Burch	Alberta Home and School Councils' Association
Edna Dach	Elk Island Public Schools Regional Division No. 14
Jack Dale	Calgary School District No. 19
Peter Darby	Chinook's Edge School Division No. 73
John Darroch	Palliser Regional Division No. 26
	College of Alberta School Superintendents
Dale Erickson	Alberta School Boards' Association
Chris Farthing	Edmonton Catholic Regional Division No. 40
Toni Hafso	Alberta Education
Gary Heck	Lethbridge School District No. 51
Harry Henshaw	Alberta Education
Robert Hogg	St. Albert Protestant Separate School District No. 6
	The Alberta Teachers' Association
Maurice Hollingsworth	Palliser Regional Division No. 26
Judi Hunter	Calgary School District No. 19
Glen Johnson	Edmonton School District No. 7
Doug Knight	Alberta Education
Catherine Kullman	TELUS Learning Connection
Norma Nocente	Universities Co-ordinating Council
John Percevault	Grande Yellowhead Regional Division No. 35
Archie Pick	Alberta Chamber of Resources
Doug Pudwell	Medicine Hat School Division No. 76
	Association of School Business Officials of Alberta
Randy Rudd	Pembina Hills Regional Division No. 7
	College of Alberta School Superintendents
Ralph Schienbein	Elk Island Public Schools Regional Division No. 14
Jacqueline Skytt	The Alberta Teachers' Association
Ron Sohnle	Alberta Education
Gary Spence	Wolf Creek School Division No. 72
Lonnie Springer	Calgary Roman Catholic Separate School District No. 1
Mary Stephenson	Alberta Chamber of Commerce
Barbara Stevenson	Calgary School District No. 19
	The Alberta Teachers' Association
Paul Stevenson	Horizon School Division No. 67
Arwin van Voorthuizen	Alberta College of Art
	Council of Presidents of Public Colleges and Technical Institutes of Alberta

RESOURCE PERSONNEL

John Hogarth	ConsultNet
Peter Wright	University of Alberta

TABLE OF CONTENTS

Executive Summary 1
Chapter One: First Thoughts 3
What's In A Name? 3
Reclaiming Lost Territory 4
Hard and Soft Technology 5
Where Have All the Workshops Gone? 5
"Under Construction" 6
Reflecting on Curricular Fit 7
Oops! 8
Think "Comprehensive!" 8
"Bottom Line"—The PD Version 9
Chapter Two: Professional Development and Growth Planning 11
Starting Points 11
Structured Approach 12
Forms for Planning 13
Forms for Documenting Professional Development Activities 18
Vision Building 20
Example of a Vision Planning Model 20
Chapter Three: The Institutional Face of Professional Development 23
Roles of Professional Developers 23
Formats for Professional Development 24
Mentoring 25
Characteristics of Successful Mentoring Programs 26
Preparing for a Mentoring Program 26
Stages In the Mentoring Relationship 27
Risks of Mentoring 28
Functional Model of Professional Development 28
Catalytic Function #1: Stimulating Interest 29
Catalytic Function #2: Facilitating Skill Building 30
Catalytic Function #3: Facilitating Script Building 30
Catalytic Function #4: Dissemination 31
Technology Within Professional Development 31
Chapter Four: Critical Success Factors for Professional Development 33
Social Factors 33
Communication 33
Social Interaction 33
Motivational Factors 34
Learning Styles 34
Self-Confidence 34
Relevance 35
Incentives 35
Other Environmental Factors 36
Time 36
School Facilities and Equipment 37
Funding 38
Technical Support 38

Appendix A: Promising Practices 41
Workshops 43
Facilitating Teacher Access to Technology 43
One-day Series of Workshops 45
Web Site Development Project 46
Corel Presentations Workshop 47
PowerPoint Presentation Workshop 49
SmartBoard Workshop 50
Technology Applications in Mathematics 52
Technology Training Initiative 53
Technology Across the Curriculum Summer Workshops 54
Mentoring Projects 57
Certificate in Educational Technology 57
Galileo Teacher Secondment Project 59
Teacher-Librarian Mentorship Program 60
Teacher Explorer Centres 62
Long-Term District Training Plan 63
Technology Leadership and Mentorship Summer Institute 65
Teaching and Learning With Technology (TLT) 66
Facilitating Teacher Access to Technology 67
Self-Directed Professional Development 69
Guide Booklets/PDF Files 69
Professional Development for Innovators 71
Project Pegasus: A Research-Based Approach 71
TELUS Learning Connection (TLC): An Educational Internet Alliance 73
Appendix B: Related Alberta Education Resources 75

EXECUTIVE SUMMARY

A key factor in optimal student learning is the availability of systematic, systemic and sustained professional development opportunities for teachers. Specifically, a large number of Alberta teachers currently need assistance in implementing the *Information and Communication Technology Interim Program of Studies*. This new program, which calls for a new "technology across the curriculum" approach, requires teachers to significantly change the way they work with students and facilitate learning.

Teachers also need to keep up with new information about the nature of learning (for both students and teachers). As just one example, experts now perceive knowledge as being constructed, not absorbed.

Professional development occurs at the intersection of three separate elements:

1. Professional growth plans developed by **individual teachers,**
2. The activities of **institutions** that support teachers' professional growth, and
3. Factors in the **environment** that affect the success of professional development activities.

Individual teachers typically develop annual professional development growth plans. Beginning September 1, 1999, Alberta Education requires every teacher to have an Annual Teacher Professional Growth Plan. This report includes a set of forms for this purpose, as well as guidelines for a "visioning" approach.

Institutions ensure that appropriate professional development activities are made available. Such activities need to be related to the program requirements of Alberta Education and the school jurisdiction, while also recognizing that teachers need to have ownership of the professional development process.

Questions are now being raised about how effective it is to rely totally on the random, discrete workshops that were so typical of professional development activities in the past. Two relatively new forms of professional development are gaining popularity: mentoring and the use of technology (the Internet, e-mail chat groups, etc.) to facilitate interaction among professional colleagues.

A working model that divides institutional professional development functions into two categories is included in this report. The *catalytic* functions are stimulating interest in teaching technology across the curriculum, facilitating skill building, facilitating script building and disseminating information. The *maintenance* functions are ongoing needs assessment and evaluation.

Various factors in the school **environment** affect professional development, both directly and indirectly. There are social factors (the quality of communication and interaction), motivational factors (learning styles, self-confidence, relevance and incentives) and other environmental factors (time, school facilities, funding and technical support).

Programs involving technology across the curriculum are relatively new—and quite complex as well. Therefore, it is not surprising that only a few professional development projects so far have encompassed the whole concept. Nevertheless, as described in Appendix A to this report,

a variety of related professional development activities are underway across the province, including workshops, mentoring programs and projects that are self-directed and/or innovative.

CHAPTER ONE
FIRST THOUGHTS

Professional development is a well-established expectation for teachers today, as is professional development directly related to technology in the classroom. Just about everyone has some idea of what professional development for technology in teaching might, or should, look like—teachers, professional developers, administrators, parents, students. Frequently, people fail to recognize that much pertaining to this area is changing, including the very nature of professional development, not to mention how teaching technology will be approached in Alberta in the near future.

It seems appropriate, therefore, to begin this promising practices paper by examining some fundamental issues, challenging a few assumptions and offering a few suggestions.

Key Resource:
Alberta Education. *Information and Communication Technology, Kindergarten to Grade 12: Interim Program of Studies.* (1998).
Also available at <http://ednet.edc.gov.ab.ca/technology>

WHAT'S IN A NAME?

Digest

The term adopted to describe integrating *teaching technology* with *teaching subject disciplines* is **technology across the curriculum**, which is derived from *language across the curriculum*.

This report is about promising practices in professional development. But professional development for what? Integrating technology? Teaching technology? Teaching **with** technology? Virtually every expression currently in use means different things for different people.

To avoid ambiguity, a new term is needed which meets the following criteria:

- It must reflect the intent of Alberta Education in introducing the new Information and Communication Technology Program of Studies.
- It must be meaningful to teachers who are implementing the program.
- It must not carry meaning(s) contrary to the intent of the program of studies.

Technology across the curriculum has a number of important nuances:

- The relationship between technology and the rest of the curriculum is intended to be **seamless**.
- Technology as process can be emphasized.
- It is appropriate to associate technology knowledge, skills and attitudes with those of the subject disciplines.
- Some elements of technology can be discipline-dependent while other elements can be interdisciplinary.
- There is a symbiotic relationship between learning technology and learning subject disciplines.

RECLAIMING LOST TERRITORY

Digest

It has become almost universal to equate **technology** with the **tools** of technology, more specifically with computer hardware and software. Alberta Education's interim *Information and Communication Technology Interim Program of Studies* returns to a more comprehensive view of technology and identifies three categories of associated learning outcomes:

1. foundational operations, knowledge and concepts
2. processes for productivity
3. communicating, inquiring, decision making and problem solving.

An expert can use word association games to discern all sorts of interesting things about you based on the first words that come to your mind. In an introductory graduate level course in educational technology, the trigger word, of course, is *technology*, and the responses can be predicted: *computer, television, refrigerator, satellite...* A few astute folks censor their first thoughts and say things like *word processing, databases* or *web site*. None of these responses really defines technology, but collectively they reveal that we generally equate technology with its products. If we look at how technology has figured in the past in school curricula, we find that it has tended to focus on using the tools.

Definitions of technology, however, describe it as essentially a **process**: *the systematic application of knowledge to the solution of practical problems*. While not sacrificing any of the instrumentality we associate with technology, Alberta Education's approach in its new program of studies makes a substantial effort to regain technology's conceptual breadth.

HARD AND SOFT TECHNOLOGY

Digest

The notion of "process" as technology is not new. Educational technologists have long distinguished between *hard* and *soft* technologies, applying the first term to the use of hardware and software, and the latter to systematic, analytic approaches to problem solving. In technology across the curriculum, soft technologies might include systematic problem analysis, techniques for expanding a literature search, and evaluation methods for assessing information gleaned from the Web.

When Alberta Education introduces the notion of *process* into the technology learning outcomes, it is expanding the perception of technology in the curriculum to encompass both hard and soft technology.

Traditionally, educational technologists have used the term *soft technology* to describe systematic, analytic, outcome-oriented and primarily cognitive elements; for example, *needs assessment*, *task analysis*, and *instructional design*.

How does this translate into technology across the curriculum? The label fits the array of techniques we teach in a variety of subject areas to help students locate and process information to solve a problem. It includes much of the metacognitive advice we give, such as, "Break the problem down into smaller problems and solve the smaller problems, one at a time." It includes approaches to information retrieval such as *citation pearl growing:* "Do a quick ERIC search on the Internet to find one or two articles on your topic, see how they are indexed, and use the terms for a second, more focussed search." A third example: teaching sets of questions in information literacy programs to help students critically evaluate the quality of information they glean in searching the Web.

WHERE HAVE ALL THE WORKSHOPS GONE?

Digest

New approaches to professional development are evolving. PD should now be viewed as...

Systematic – PD should be approached in a methodical, planned fashion.

Systemic – Teachers' needs for PD are situated within a system which embraces students, other teachers, the school collectively, the jurisdiction and the provincial curriculum.

Sustained – PD should be a series of planned efforts which take place over a period of time, and will probably involve some combination of individual and collaborative efforts.

Approaches to professional development have changed in the last decade. "Old" professional development was often a "one-shot" workshop. "New" professional development includes *systematic*, *systemic* and *sustained* approaches.

Systematic. Professional development should be approached methodically, beginning with an analysis of the learning needs of students **over the long-term** and using this analysis as the foundation for determining the professional needs of teachers, also **over the long-term**. Frequently, there is an assumption of prerequisite relationships among the professional needs identified. For example, it is not reasonable to assume that teachers will embrace the need to learn various types of computer skills until they have some first-hand experience of how student learning will be the better for it. Furthermore, they will probably not be comfortable incorporating computer use in their content areas until they have mastered some basic skills themselves.

Systemic. Any teacher's needs for professional development are situated within a system (students, other teachers, the school collectively, the jurisdiction, and the provincial curriculum). Since there is a flow of information or influence from one part of the system to another, teacher's needs are influenced by students' needs and tempered by the school's plans. A range of other forces can influence the success or failure of professional development. For example, the level of effort made to change is related to a perception that the new will be valued, rewarded, etc. The desire to implement technology also is influenced by the availability of technology, the ease of use and a perception that the benefits outweigh the losses. Professional development that takes into account this interplay of forces is much more likely to be successful.

Sustained professional development involves a series of planned efforts over time and usually involves some combination of individual and collaborative efforts. For example, since today's students need to be able to visualize data, teachers of science, mathematics and social studies in one school may decide to attend a symposium on applications of software. Each teacher might then attend a workshop to learn how to use one piece of software and commit to mentoring their colleagues on it as they revise teaching strategies to integrate the use of this software into their respective subject areas. An online community of subject specialists also might share ideas about what they are doing.

"UNDER CONSTRUCTION"

Digest

Our understanding that knowledge is *constructed* and not simply *absorbed* is altering the way we think about curriculum and teaching in general. *Technology across the curriculum* will add processes and tools to support authentic learning activities within other subject areas. Constructivism also describes how students and teachers learn and provides the rationale for action research and project-based approaches to professional development.

Factors involved in learning include the knowledge and experience we bring to the topic, the level of interest and how meaningful we think the content is. This theory of learning, called *constructivism*, must be **student-centred** and **authentic**. Students no longer simply study "about" science; they "do" science. They do not merely memorize historical facts; they research, think and write as young historians.

Teachers are embracing this new understanding of curriculum with varying levels of enthusiasm and sophistication. The technology across the curriculum approach may at first seem to complicate matters by adding more "things to do and think about." However, it has the potential to enrich the curriculum by providing processes and tools that support meaningful learning. Concurrently, other subject areas such as language arts, mathematics or social studies provide an authentic context for learning technology.

In professional development that "works," the problems addressed are the ones teachers feel have a direct bearing on the learning needs of their students.

REFLECTING ON CURRICULAR FIT

Digest

Professional developers need a framework within which to talk about how technology fits with the rest of the curriculum in a technology across the curriculum approach. One possible scheme would describe the fit as being:

- technology neutral
- technology driven
- technology enhanced
- technology enabled

Technology is often categorized by hardware type and application type, but seldom by the nature of the "fit" between technology and other curricular content.

*Technology **neutral**:* Technology is perceived to have a low impact or indirect effect on the achievement of curricular outcomes; for example, constructing a philosophical argument, acting.

*Technology **enhanced**:* Curriculum elements could be taught without technology, but technology creates a more powerful learning experience; for example, writing to pen pals. Visualizing data did not originate with the graphing calculator or spreadsheet, but technology let students get past the mechanics of the process and concentrate on the mathematics.

*Technology **enabled**:* Technology that makes it possible to do things we could not previously have done; for example, simulations. Science experiments that were too dangerous for the classroom now can be done safely in simulated environments. Microworlds open new possibilities for exploration.

*Technology **driven**:* There is virtually no choice but to recognize the influence of technology on the curriculum; for example, public expectations that students will use and study technology. Why would a student who has experienced the power of a CAD package at home ever want to undergo the agony of producing the same results by hand?

OOPS!

Digest

Do not be surprised if some teachers report that their first efforts at teaching technology seem to interfere with well-honed teaching skills teaching in their subject specializations. Embarking on the unfamiliar frequently produces this effect. The good news is that, with persistence, the situation will correct itself.

Professional development is not a straight road. We can expect "Oops!" experiences during periods of professional growth.

Benner, Tanner and Chelsea (1992) noted that a nurse who is an expert in obstetrics behaves more like a novice than an expert when first transferred to emergency. The good news is that the time it takes to adapt to the new environment is considerably shorter than for a true novice.

Something similar is likely to happen when teachers who are experts at teaching their subject matter begin to integrate the use of technology. For example, teachers who are normally good at eliciting knowledge from students may find themselves simply "telling answers" because they have other things on their minds. Professional developers should be prepared for this to happen, be understanding when it does and, above all, be supportive and encouraging, knowing it will be short-lived.

THINK "COMPREHENSIVE!"

Digest

This document stresses systematic, sustained approaches to professional development, with emphasis placed on techniques such as action research, project-based approaches and mentoring. We should, however, be mindful of the fact that sometimes all a teacher will need is a short introduction to a piece of software, a single example of one successful classroom activity or a chance to be alone with the right book.

Professional development for technology integration should not be strictly divided into "old" and "new," with an assumption that "old" is bad and "new" is good; single workshops are "bad"; sustained mentoring is "good." No one approach will work for all teachers, any more than one teaching method will work best for all students.

Although collaborative learning in an application environment is generally a very powerful approach to professional development, some teachers simply need to be shown how to do something. As long as each teacher is committed to a plan of action and there are provisions for follow-up, the approaches used can vary considerably.

"BOTTOM LINE"—THE PD VERSION

Digest

Student learning!

Student learning!

Student learning!

Instead of originating solely from teachers' interests, "new" professional development looks first at student learning. The chain of reasoning is:

1. My students need...
2. To help my students, I need...
3. To help me, the following professional development would be useful...

Two further thoughts:

1. If the need for professional development originates in student learning needs, then the most important outcome measure is how well student learning needs are met.
2. Note the frequency of the first person pronoun in the chain of reasoning: *I, my, me.* Needs are determined by individual teachers, and professional development exists to support teachers' plans to enhance their repertoire of knowledge and skills.

References for Chapter 1

Alberta Education. (1998). *Learner Outcomes in Information and Communication Technology, ECS to Grade 12: Interim Program of Studies.* Also available at <http://ednet.edc.gov.ab.ca/technology/>

Benner, P., Tanner, C., & Chesla, C. (1992). From beginner to expert: Gaining a differentiated clinical world in critical care nursing. *Advances in Nursing Science*, 14(3), 13–28.

CHAPTER TWO
PROFESSIONAL DEVELOPMENT AND GROWTH PLANNING

Teachers are key decision makers in their own professional development, not passive recipients. How, then, do teachers determine their own needs and make their own choices?

Alberta Education requires teachers to develop an annual teacher professional growth plan. This plan is a logical vehicle for assessing their needs and planning to address those needs. The policy on Professional Growth states:

1. By September 1, 1999, each school jurisdiction will implement a local policy consistent with the provincial policy, *Teacher Growth, Supervision and Evaluation.* These local policies will be developed and implemented in consultation with teachers.
2. Each teacher is responsible for completing an annual teacher professional growth plan that:
   - reflects goals and objectives identified by the teacher,
   - shows a relationship to the Teaching Quality Standard, and
   - takes into consideration the education plans of the school, the jurisdiction and the government.
3. The plan is reviewed or approved by the principal or a group of colleagues who have been delegated for this purpose if jurisdiction policy permits.
4. The annual teacher professional growth plan may be part of a long-term plan and can consist of a planned program of mentoring a teacher or supervising a student teacher.

For policy on Professional Growth Plans, see

<http://ednet.edc.gov.ab.ca/teaching/policies/teachgrwth.pdf>

For policy document, *Teacher Growth, Supervision and Evaluation*, see

<http://ednet.edc.gov.ab.ca/polregs/adobe/421.pdf>

STARTING POINTS

Teachers may take a variety of approaches to developing a professional growth plan.

1. Take a **structured** approach employing a comprehensive framework and set of forms such as those developed by Danielson (1995) and the Alberta Teachers' Association to facilitate professional conversation, reflection and planning. Danielson divides the complex activity of teaching into four domains:
   - planning and preparation,
   - classroom environment,
   - instruction, and
   - professional responsibilities.

2. Look at the practice of teaching holistically; for example, vision building.
3. Access some of the technology self-assessment tools available on the Web.

STRUCTURED APPROACH

The following forms can be used in a structured approach to developing a professional growth plan.

FORMS FOR PLANNING

In the following pages you will find forms that can be used in the structured approach.

Page

- Identify trends and issues 13
- Set personal priorities for action 13
- Assess the current situation 14
- Draft goals 14
- Take stock 14
- Analyze helps and hindrances 15
- List sources of support and resources 15
- Plan to achieve goals 16
- Log personal research 16
- Annual professional growth plan (sample) 17

FORMS FOR DOCUMENTING PROFESSIONAL DEVELOPMENT ACTIVITIES

- Instructional artifact sheet 18
- Professional development contacts 19
- Professional development attendance 19
- Professional development contributions 19

FORMS FOR PLANNING

Teaching Technology Across the Curriculum

1. Identify Trends and Issues

A. List in rank order the top issues and trends associated with teaching technology across the curriculum in Alberta and your school jurisdiction. (Review jurisdiction goals.)

B. List in rank order the top issues and trends associated with teaching technology across the curriculum in your school. (Review school goals).

C. List in rank order the top issues and trends associated with teaching technology across the curriculum in your program and teaching assignment. (Consider the Teaching Quality Standard, Learner Outcomes in Information and Communication Technology, and Teaching and Learning with Technology documents.)

D. Compare your lists. What common issues and trends have been identified?

Source: The Alberta Teachers' Association (Adapted)

Teaching Technology Across the Curriculum

2. Set Personal Priorities for Action

A. As I reflect about my practice, to what extent are my students communicating, researching, managing data and producing/using technology?

B. Are students now acquiring the knowledge, skills and understanding that I intend? How do I know?

C. Are my students now involved in co-operative learning activities? Is there urgency to learn?

D. Do I alter my goals or instructional activities as I teach?

E. What changes to my practice and instructional activities should I consider?

Adapted from "Enhancing Professional Practice: A Framework for Teaching" by Charlotte Danielson.

Teaching Technology Across the Curriculum

3. Assess the Current Situation

What activities and practices should I be increasing?	What activities and practices should I be reducing?
What NEW activities and practices could I undertake?	What activities and practices could I STOP?

Source: The Alberta Teachers' Association (Adapted)

Teaching Technology Across the Curriculum

4. Draft Goals

Try to keep goals simple, and if possible, achievable within one or two years. Your goals must reflect your assessment of your learning needs, relate to the Teaching Quality Standard and take into consideration the school system and provincial education plans.

GOAL ONE
GOAL TWO

Source: The Alberta Teachers' Association (Adapted)

Teaching Technology Across the Curriculum

5. Take Stock

What are my STRENGTHS?	What are my AREAS OF GROWTH?
What OPPORTUNITIES exist?	What BARRIERS should I be aware of?

Source: The Alberta Teachers' Association (Adapted)

Teaching Technology Across the Curriculum

6. Analyze Helps and Hindrances

For each goal statement, brainstorm to identify forces that can help you reach the goal and forces that might hinder you. Three types of forces could be considered:

- those that affect knowledge and skills,
- those that affect interpersonal dynamics, and
- those that affect facilities, policies, etc.

GOAL #1:	
HELPING FORCES (FOR)	HINDERING FORCES (AGAINST)
GOAL #2:	

Source: The Alberta Teachers' Association (Adapted)

Teaching Technology Across the Curriculum

7. List Sources of Support and Resources

To develop a catalogue of possible sources of support and other resources, use the following.

School-based Resources:	Specialist Council:
Local/Jurisdiction Support:	Regional Consortia:
Web Sites:	Libraries:
Teachers' Convention:	Post-Secondary Education:
Other:	

Source: The Alberta Teachers' Association (Adapted)

BEST COPY AVAILABLE

Teaching Technology Across the Curriculum

8. Plan to Achieve Goals

19__ to 19__

Goal:

Strategies	Timeline	Resources Required	Benefits/Outcome

Source: The Alberta Teachers' Association (Adapted)

Teaching Technology Across the Curriculum

9. Log Personal Research

Name _____ School _____

Grade Level _____ Subject(s)_____ School Year ___

1. Write a question that you would like to answer about teaching technology across the curriculum.
2. What information do you need to answer the question? What resources will you access?
3. In the Action Plan, indicate how you plan to answer the question and set timelines.

Action Plan

Step	Actions	Timeline
1		
2		
3		
4		

4. Summary and Conclusions: When you complete the research, answer the following questions on a separate paper:
   - What have you learned from this project?
   - What were your sources?
   - What additional questions do you have?
   - Do you plan to alter your practice as a result of this project? If so, how?

Adapted from "Enhancing Professional Practice: A Framework for Teaching" by Charlotte Danielson.

ANNUAL PROFESSIONAL GROWTH PLAN (SAMPLE)

Name Iza Teacher School Anywhere Middle School

Grade Level Eight Curriculum Area Humanities School Year 1998/1999

Personal Reflections

Since this is my first growth plan I intend to build on my strength—incorporating student research activities into my program. Each year I have worked with the school librarian to teach students effective research skills. Students have then worked in small groups to assemble data and develop points of view on the topic. During the last two years I have been blending concepts from social studies and language arts to encourage students to acquire knowledge and information in the social studies area and use skills developed in language arts to communicate this knowledge. Students have been creating displays on cardboard bifolds, which communicate to others what the students have learned. I have been looking for ways to make these presentations even more powerful.

Trends and Issues

At our last staff meeting the divisional director of technology made a presentation about provincial and divisional goals for integrating technology. Up until now, my students occasionally have used the library computers to find information on the Internet. They also have done some word-processing work in the lab. I am excited that I will have a computer in my room for student use as well as some additional computers in the library.

Goal

To integrate technology into my program by having each student, as part of a group, create a presentation using PowerPoint.

My Learning Needs

I need to attend the introductory session on using presentation software at the division-wide PD day in October. I also will look for sessions on using scanners and digital sources of information.

Plans:

- Check with other teachers in the area to see if someone else is interested in this project so we can share and learn together.
- Access my professional development funding to attend a thorough "hands-on" workshop where I can do an activity similar to the one I will undertake with students.
- Check with administration to see about visiting a classroom that already is making presentations using computers and presentation software.
- Invite the divisional technology director to work with my class and me for a few periods as we get started.

What Needs to Change?

I need to talk with the librarian about the different needs of the students and me.

Some management routines in the classroom may need adjusting.

What are the implications for assessing learning?

What Will Success Mean?

I will experience personal satisfaction and learning. More importantly, my program will improve. Students will have acquired new knowledge and skills, they will have an opportunity to collaborate using a new medium and their presentations will no longer be passive. Students will gain the new knowledge and skills necessary to make "live" presentations using technology.

FORMS FOR DOCUMENTING PROFESSIONAL DEVELOPMENT ACTIVITIES

Teaching Technology Across the Curriculum

Instructional Artifact Sheet

Name _____ School _____

Grade Level _____ Subject _____ School Year _____

Professional Goal:

Instructional Goal or Goals:

1. Attach a description of a learning activity that engages students in technology (in the area cited above). Examples are a worksheet, homework or class assignment, project guidelines or a problem.
2. Provide several samples of student work in this assignment/activity. They should reflect the full range of student ability in your class and include feedback you provided to students.
3. Write a brief reflection about the learning activity, answering the following questions:
   - What is the context of the activity in terms of students' prior knowledge and the other activities they have been undertaking?
   - What do the samples of student work tell you about the students' level of knowledge, skill and understanding?
   - How does the activity help students develop their knowledge, skills and understanding?
   - What do you plan to do next with these students?

Adapted from "Enhancing Professional Practice: A Framework for Teaching" by Charlotte Danielson.

Teaching Technology Across the Curriculum

Professional Development Contacts

Name _____

School_____ School Year_____

Date	Person Contacted	Type*	Purpose	Outcome

*In person, phone, e-mail, listserver, etc.

Teaching Technology Across the Curriculum

Professional Development Attendance

Name _____

School_____ School Year_____

Date	Event e.g., workshop, conference, reading	Benefits Derived

Teaching Technology Across the Curriculum

Professional Development Contributions

Name _____

School_____ School Year_____

Date	Event or Service*	Contribution

*Mentoring, presentation, meeting, open house

Forms adapted from "Enhancing Professional Practice: A Framework for Teaching" by Charlotte Danielson.

VISION BUILDING

Vision without action is a daydream. Action without vision is a nightmare.
-Japanese Proverb

Begin with the end in mind.
-Stephen Covey

The preceding structured approach does not work well for everyone. For some, *vision building* offers a more holistic approach to arrive at professional development goals that are in harmony with the goals of the school, the jurisdiction and the province.

Vision is a mental model of a future state of an individual, group or organization that is:

1. **positive** enough to be motivating, and
2. **elaborate** enough to provide direction.

A personal vision plan that provides a positive statement about a preferred state of integrated technology and improved student learning translates into goals and objectives that are sustained through action. One of the most important actions is communicating and sharing one's personal vision plan.

Personal vision planning allows participants to view teaching in the context of their strengths. It also allows individuals to see how their view of the future is aligned with school, jurisdiction and provincial visions.

EXAMPLE OF A VISION PLANNING MODEL

Most models for vision building have the same fundamental components but there are different ways of ordering and labeling the process.

The fundamental components are:

- developing a view of a preferred future,
- setting goals,
- considering strategies to overcome constraints,
- undertaking projects and practices with identified initiatives, and
- engaging in systematic, analytical reflection.

1. Focussing

Create a vision of the future that focusses attention on improved student learning through improved or changed teaching practice while integrating technology into the curriculum.

> *Example:*
>
> I know how to use the computer for recording student marks, using the comment bank and basic word processing. How do I see utilizing integration of technology into my teaching to improve student learning?
>
> *My vision is to connect my social studies students to world communities through the use of the Internet. I want to publish students' writing developed from collaborative work with students and teachers around the world and share it with the world community. I am committed to communicating and sharing my vision with interested students, parents and colleagues in traditional and electronic ways.*

2. Planning

Set priorities and establish goals based on a needs inventory.

> *Example:*
>
> My needs analysis shows me that:
>
> I need to learn how to use the Internet.
>
> I need to research how collaborative virtual classrooms work.
>
> I need to know how to use e-mail.
>
> *Publishing student work on the Web is a long-term goal. Gaining experience with the Internet and Internet applications such as e-mail is my immediate goal.*

3. Acting

Act on the plan by ensuring that every effort is steered toward achieving something tangible that will help attain the goal.

> *Example:*
>
> *I will begin by setting up an account with an Internet provider. This will give me access to e-mail and the Web. Next I will ask my colleague, Chris, to help me develop my Internet skills.*

4. Evaluation

Use a log or journal to record your progress, and monitor your progress through continual reflective evaluation. As you research virtual classrooms, think of how your skill development relates to your plans to integrate technology for enhanced student learning. Remember that developing skills does not equate with integrating technology, but it may be a prerequisite.

5. Teaming

Bring others into the process. Form teams and unite efforts towards an identified mutual goal. If other teachers share the same goals, there will be increased opportunities for success in achieving a seamless integration of technology in the school setting.

Note: This example is adapted from "Time Power" by Charles Hobbs.

References for Chapter 2

Alberta Teachers' Association. (1998). *Teacher Professional Growth Plans.* [Workshop]. Edmonton, AB.

Covey, Stephen R. (1989). *The 7 Habits of Highly Effective People.* New York: Simon & Schuster.

Danielson, Charlotte. (1996). *Enhancing Professional Practice: A Framework for Teaching.* Alexandria, VA: Association for Supervision and Curriculum Development.

Hobbs, Charles. (1983). *The Insight System of Planning Your Time and Your Life.* [Sound Recording]. Chicago, IL: Nightingale-Conant.

CHAPTER THREE
THE INSTITUTIONAL FACE OF PROFESSIONAL DEVELOPMENT

For individual teachers, professional development is an intentional effort to foster professional self-growth. However, there also is an institutional face of professional development: the structures and programs that provide learning opportunities and other types of support for teachers. In professional development, there are various organizational roles and various formats involved.

Since these roles and formats are basically the same for all types of professional development, many other resources already are available. The exception is mentoring, which seems to be a promising alternative to "event-based" professional development for technology across the curriculum.

ROLES OF PROFESSIONAL DEVELOPERS

Professional developers may serve as: *co-ordinators*, *facilitators* and *mentors*. Some jurisdictions have staff positions for professional development. In others, staff with other responsibilities take on the role, or regional consortia staff provide this service.

Co-ordinators manage the organization's professional development plan. They bring together people and resources so that learning activities can take place. Issues associated with staffing, communications, obtaining approvals, salaries, leasing and rentals, and facilities are some of the concerns of co-ordinators.

Facilitators help groups achieve high performance in their thinking and learning activities. The facilitator's role has three core components: task, framework and process.

Tasks

The facilitator:

- serves as a source of knowledge and experience,
- acts as a catalyst and adds value by activating and stimulating the process, and
- understands and articulates the needs of the group.

Framework

The facilitator:

- draws on a range of frameworks or ways of thinking that stimulate and focus thinking.

Process

The facilitator:

- monitors interaction among participants and guides them towards getting the best contribution from everyone,
- promotes clear thinking by structuring how people work together, and
- ensures that there are appropriate learner outcomes.

Mentors help meet the learning needs of one or two other teachers with whom they work closely. The mentor:

- helps to define the needs of the protégé,
- helps to construct strategies for achieving the goals,
- provides leadership in the interaction between mentor and protégé, and
- depends on open-ended methods and interpersonal skills to enhance learning outcomes.

FORMATS FOR PROFESSIONAL DEVELOPMENT

Workshop	*Length:*	½–full day
	Size:	10–30 participants
	Goals:	Develop skills, learn procedures, translate theory into practice, provide time for experimentation
	Strategies:	Pre-reading, lecturette, demonstration, small group discussion, individual tutoring, modelling, role-playing, problem solving, practice by doing
Symposium	*Length:*	½–full day
	Size:	Variable
	Goals:	Inform, increase awareness, analyze issues
	Strategies:	Pre-reading, lecture, question and answer, discussion
Seminar	*Length:*	1½–3 hours
	Size:	6–15 participants
	Goals:	Examination of materials/methods under expert guidance
	Strategies:	Pre-readings, presentation, discussion, questions, development of arguments, position and evidence
Clinic	*Length:*	1½ hours–full day
	Size:	10–20 participants
	Goals:	Demonstrate procedures, improve skills
	Strategies:	Participant-leader interaction, demonstration, performance analysis, discussion, inquiry

Online Staff Development	*Length:*	Flexible
	Size:	Flexible
	Goals:	May include transmitting information, inspiring others, persuading opinion, developing knowledge, acquiring concepts, examining research, analyzing issues, individual instruction, improving skills, providing professional development on a 24-hour schedule
	Strategies:	Web sites, chat lines, e-mail, listservers, newsgroups, online journals Activities might include visiting online education sites, participating in an online discussion, reading online articles, accessing online programs, using online help sites, previewing software and conferencing.
Individually Guided Staff Development	*Length:*	Flexible
	Size:	Flexible
	Goals:	Based on personal visioning or needs assessment
	Strategies:	Reading professional journals, revising or developing teaching materials, experimenting with new teaching methods, viewing videotaped programs, learning from a colleague
Reflective Practice	*Length:*	Ongoing
	Size:	Flexible
	Goals:	Develop individual practice, build on a school culture, increase collegiality
	Strategies:	Observations, regular meetings, reflective writing, learning from colleagues, teacher portfolios, collegial conversation

MENTORING

Mentoring has the potential to provide sustained professional development, something that is frequently lacking in group events. Many different terms are used to describe mentorship activities, including coaching, peer coaching and collegial coaching. In each case, a mentor works with two or three teachers, helping them to acquire knowledge and skills and enhance their integration of technology into subject disciplines. A mentoring program requires systematically selecting, training, matching and supporting mentors.

The intention of a mentoring program is to:

- provide for increased transfer of learning,
- increase participant involvement in professional development,
- provide a forum for collegial discussion,

- share successful practices,
- improve teaching strategies,
- increase comfort level, and
- develop technology skills that are relevant to teaching.

CHARACTERISTICS OF SUCCESSFUL MENTORING PROGRAMS

Successful mentoring programs are ongoing, supported, structured, intentional and reciprocal.

Ongoing. The relationship between the mentor and the protégé is critical. Since it takes time to develop trust and respect, mentoring is a long-term process. Growth requires ongoing planning, monitoring, evaluating and revising.

Supported. Systemic support for a mentoring program, including time and resources, conveys the message that it is a significant means of professional development and provides the opportunity for the mentoring relationship to develop. Time is required for mentors and clients to meet; networking among mentors should be fostered.

Structured. Mentors must be carefully selected and thoroughly trained. As well, the mentoring program must be evaluated. Providing mentors with ongoing support and ways to share with other mentors will enhance the success of the program.

Intentional. Although mentoring occurs naturally as experts share with novices, there are benefits to a formal mentoring program that intentionally develops collaboration as a norm for a system. An intentional mentoring program helps to establish clearly defined goals, and develop the general knowledge, skills and attitudes associated with using technology purposefully.

Reciprocal. The relationship between the mentor and the protégé is bi-directional. As mentors help their protégés develop skills, they may encounter applications of technology within the curriculum that are new to them.

PREPARING FOR A MENTORING PROGRAM

A co-ordinator should select mentors and organize their training, match mentors with teachers, provide mentors with ongoing support and provide resources for mentors.

1. Identify the characteristics that mentors need to have. Create a checklist that prospective mentors can use to assess their potential as mentors.

   Mentors for teaching technology across the curriculum must have:

   - current knowledge about teaching technology across the curriculum,
   - demonstrated skills in teaching technology, and
   - the respect of colleagues.

2. Plan training for mentors and protégés. Joint training may be needed as the pair begin the coaching relationship.

Mentors will need training in:

- peer coaching process,
- stages of the mentoring relationship,
- creating growth plans,
- building trust,
- developing skills,
- avoiding the risks of mentoring, and
- selecting a mentoring style.

3. Plan ongoing support for mentors: for example, having mentors connect with each other; supporting frequent contact between mentors and protégés; listservers, newsgroups and web sites; regular informal meetings.

4. Select mentors and match mentors with protégés. Mentors and protégés should provide a profile of needs and styles. Matching can be difficult with little knowledge of mentors and potential protégés. Self-selected mentoring partnerships frequently have proven to be the most successful; however, the opportunity is not always available. An alternative is to have potential protégés meet mentors at workshops.

STAGES IN THE MENTORING RELATIONSHIP

Stage One. The mentor and protégé must become acquainted and formally clarify common interests, shared values and professional goals. The mentor should help the teacher think about a professional growth plan. At the end of the first stage, the mentor and protégé can re-evaluate the relationship for match of values, interests and needs. If there is a mismatch, the teacher should select (or have selected) a new mentor.

Stage Two. The mentor and protégé establish initial expectations and decide on a process that includes:

- frequency of contact and availability of mentor/protégé,
- amount and kind of support (planning, skills, management,...), and
- role of the mentor (listener, collaborator, guide, counsellor, resource person,...).

The mentor may be asked to guide the teacher in actually creating a professional growth plan.

Stage Three. The mentor considers methods of mentoring to use and whether the focus should be on:

- expertise in planning, evaluating and managing learning,
- skills in technology,
- knowledge of curriculum, and
- positive attitudes towards technology.

During this lengthy third stage, it may be important to regularly re-evaluate goals and expectations and possibly establish new goals.

Final Stage. The mentor and protégé evaluate the success of their relationship based on the goals and expectations in the growth plan.

RISKS OF MENTORING

Three common risks of mentoring are:

- *Mentor and teacher mismatch.* Differing styles, work habits and communication styles can create problems in a mentoring relationship. Providing ample opportunity for the mentor and teacher to become acquainted and discuss interests, values, goals and expectations can help to establish the relationship and provide time to evaluate the match.
- *Threat to professional image.* Teachers, who operate in a culture that values independence, may be self-conscious about consulting with others. A mentorship program also must dispel misconceptions about the degree of responsibility a mentor has.
- *Competition or rivalry.* A mentor may become uncomfortable when working with a very talented protégé. Mentors must be encouraged to be learners also, and to celebrate the successes of all parties.

FUNCTIONAL MODEL OF PROFESSIONAL DEVELOPMENT

As shown in Figure 1, professional development includes catalytic and maintenance functions.

Catalytic:	Stimulating interest Facilitating skill-building Facilitating script-building Dissemination
Maintenance:	Needs assessment Evaluation

The two maintenance functions identified here are common to all professional development models. They set and correct the course of professional development efforts.

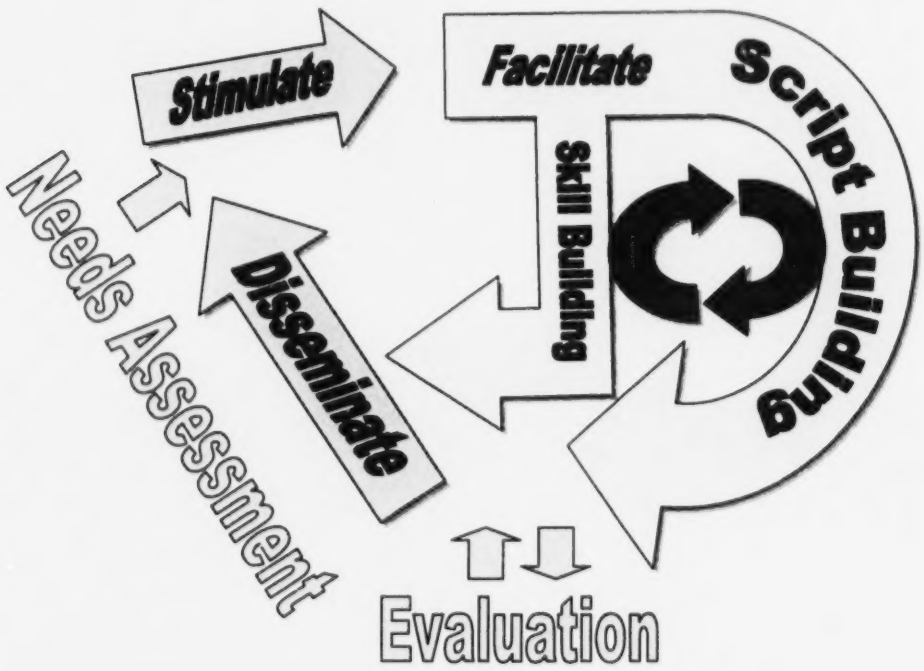

FIGURE 1
A FRAMEWORK FOR CONSIDERING A FUNCTIONAL APPROACH TO PROFESSIONAL DEVELOPMENT

CATALYTIC FUNCTION #1: STIMULATING INTEREST

If teachers are primary actors in their own professional development, then institutionalized professional development could be perceived as largely reactive. Teachers decide what they need and the institution responds by planning and rendering assistance.

However, when new programs such as technology across the curriculum are involved, developing a professional development plan must be as much an *informed* activity as an *intentional* one. If teachers are not acquainted with the range of technology across the curriculum, they can not formulate appropriate professional growth plans.

There are several audiences involved in professional development related to technology across the curriculum:

- those who do not use technology, even for personal purposes,
- those who use technology but have not linked it to the curriculum, and
- those who use technology to support their teaching but have not begun to integrate it with subject area disciplines.

Suggestions for Professional Developers:

- Keep in mind the breadth of the audience. Do not assume that users of technology will automatically comprehend the concept of technology across the curriculum.
- Provide concrete examples from a range of classroom environments. Use testimonies from other teachers and students.
- Try a thematic approach which concentrates on enriching the learning experience, e.g., visualizing data, communicating, etc. Do not concentrate on hardware and software.
- Cover a range of hard and soft technologies.
- Stimulate follow-up. The work does not end when events finish.
- Consider a variety of methods: flyers, listservers, demonstrations, symposia, workshops.
- DO NOT hype the product. Teachers are weary (and wary) of claims for technology that go beyond its reasonable ability to deliver.

CATALYTIC FUNCTION #2: FACILITATING SKILL BUILDING

Teachers need certain knowledge and skills associated with hard and soft technologies. Frequently, teachers realize how technology fits in the curriculum while they are learning about how technology works. However, if one stops at skill-building—and much professional development in the past has stopped there—there will be no opportunity to reap the potential that technology offers.

CATALYTIC FUNCTION #3: FACILITATING SCRIPT BUILDING

The concept of *script-building* has been borrowed from cognitive science. Scripts are knowledge structures that capture general information about routine series of events or recurrent types of social events. There are five components of a script: theme, roles, entry conditions, goal-directed scenes and sequences of actions. For example, in the "restaurant script," there is a theme (eating in a restaurant), typical roles (customer, waiter, chef), entry conditions (the customer is hungry and has money), and sequences of goal-directed scenes (entering the restaurant, getting a table, ordering, eating). Scripts change as our experience is enriched. The restaurant script for fast-food establishments may give way to a script for fine dining.

The "teaching script" has roles (teacher, student, parent, administrator), entry conditions (teacher possesses knowledge, student needs knowledge), goal-directed scenes (classes and lessons), sequences of actions (teacher telling a generality and showing examples, students practising on new examples). Obviously, this is only one version of a teaching script, perhaps even a caricature of teaching. However, since certain teaching scripts will inhibit the ability to teach technology across the curriculum, one function of professional development is to assist in expanding the teaching script.

Significant changes to scripts are triggered by experiences. We add a "fine dining" component to our restaurant script by eating in such an establishment. In the Apple Classroom of Tomorrow (ACOT) projects, many participants found interesting and useful ways to integrate

technology in their teaching. However, they also modified their views of teaching (Sandholtz, Ringstaff and Dwyer, 1996). There was a shift in thinking about the actions in the script so as to include complex problem-solving. There also was a change in role definitions—toward the notion of "Each a teacher, each a learner, each a leader."

Figure 1 shows the relationship between skill-building and script-building by means of circular arrows between the two functions. In some instances skill development is a trigger for reworking the teaching script. Experiences while teaching also trigger a need for additional skill-building.

CATALYTIC FUNCTION #4: DISSEMINATION

Professional development information can be disseminated through seminars, newsletters, listservers, web sites and focus groups. Communication among professional colleagues also is a powerful form of dissemination as well as an incentive for people to keep up their good work. Building and promoting communication networks among teachers should be treated as an important catalytic function of professional development.

TECHNOLOGY WITHIN PROFESSIONAL DEVELOPMENT

It would be amiss to conclude this section without addressing the role technology might play in institutional professional development. Generally when the question of technology in professional development is raised, it is in connection with the very practical problem of providing support to large numbers of teachers dispersed across Alberta. In short, it is a question of the feasibility of professional development through distance education.

A few years ago, when distance education was introduced into the high schools in Alberta, it was described as being divided into two approaches: *independent study* and the *distributed classroom*. The former was applied to forms of distance education in which course content was committed to some medium (e.g., print or CD-ROM), and students worked independently using these resources. The alternative, which depended upon teleconferencing, videoconferencing, or computer conferencing, assumed students working in groups, albeit distributed over a wide geographic area but linked by electronic means. The rise of the Internet enhances both approaches to distance education, but does not change them in kind.

As applied to professional development, resources already are available and more can be developed to support teachers working independently. The *distributed classroom* would probably become the *distributed workshop*. To these two, we should probably add a third, the *distributed community*. The notion of a distributed community is not new to distance education. Particularly in post-secondary education, students have maintained electronic linkages with each other outside class time and have jointly worked on papers and projects irrespective of the physical distances that separated them. In professional development one envisions many distributed teacher communities of varying size whose common bonds are their subject discipline, technology, a vision of learning and a yen for mutual support. "Writ small," a distributed community might be a teacher and mentor linked by e-mail. "Writ large," it could be a multi-media web site open to the world.

The obvious question is, "How realistic is this vision of professional development?" The obvious answer is, "It depends." Rarely is distance education selected by participants as a preferred

mode of learning—it usually is chosen because it surmounts circumstances which would otherwise preclude formal education, e.g., distance, family responsibilities that conflict with classes, or employment demands. The palatability of distance education, however, generally increases as participants become more familiar and more comfortable with the experience and the media used. This is particularly true if they have had an opportunity to meet face to face first and to establish a "real" as opposed to a "virtual" relationship with other members of the community. It also varies with how "clean" and convenient the communication channels are. Slow, unreliable Internet lines are the present analog of teleconferencing's noisy telephone lines.

With this sober dose of realism, let us turn to how we might map mediated experiences on professional development for technology across the curriculum. Regarding *maintenance* functions of professional development in the model, much of the information-gathering associated with both ongoing needs assessment and evaluation can be accomplished by personal e-mail, listservers and web-based questionnaires. One also can mediate the dissemination of information through such means as CD-ROMs and web sites. What is more difficult to capture in mediated formats, though not impossible, is the passion of those whose stories are being told.

The success of mediating the catalytic functions in the model hinges on how well teachers can independently develop skills with hardware and software, and on how much personal experience they must have of learning in a constructivist framework before they can adopt this in their own classrooms. Communicating the *form* of constructivism in online learning modules or program descriptions is not difficult. Communicating the *substance* is, probably because talking about constructivism tends to trivialize it. Experiencing constructivism is a very powerful experience. For the novice, this power is severely diluted if the collaborators are physically separated and not communicating in real time. As they become experienced, however, they find they can function quite well under these conditions.

The simplest recommendation: introductory professional development should be "live" with some appropriate mix of workshops and mentoring. To facilitate script-building as well as skill-building, the process should be structured on a constructivist model: real-world, problem-based, hands-on, collaborative. As the comfort level builds, the process can move to an on-line environment that is guided by the precepts of distance education.

References:

Sandholtz, J. H., Ringstaff, C., and Dwyer, D. C. (1996). *Teaching with Technology: Creating Student-Centered Classrooms.* New York: Teachers College Press.

Stillings, N. A., Feinstein, M. H., Garfield, J. L., Risslard, E. L., Rosenbaum, D. A., Weisler, S. E., and Baker-Ward, L. B. (1987). *Cognitive Science: An Introduction.* Cambridge, MA: MIT Press.

CHAPTER FOUR
CRITICAL SUCCESS FACTORS FOR PROFESSIONAL DEVELOPMENT

Like life itself, professional development is the art of the possible. A teacher's circumstances influence the posture s/he takes toward professional development. Professional developers must therefore be sensitive to social, motivational and other environmental factors.

SOCIAL FACTORS

The dominant social factors that have an impact on professional development are communication and social interaction.

COMMUNICATION

Open channels of communication help teachers to express their needs, access information, and find professional resources and support systems. These channels work two ways; professional developers also need to be able to tell teachers about programs and resources to support individual needs and initiatives.

Suggestions for professional developers:

- Provide timely and continuous access to information about professional development opportunities.
- Use a variety of media; e.g., flyers, telephone information service, e-mail, web sites.
- Remember that personal contact usually works best.
- Use testimonials by other teachers and students; provide concrete examples of successful implementation of technology across the curriculum.
- Arrange for teachers to make confidential inquiries.

SOCIAL INTERACTION

Whenever possible, teachers should have the opportunity to share information about their uses of new technologies with colleagues, supervisors and technology leaders.

Suggestions for professional developers:

- **Online communication**. Encourage teachers to use electronic discussion groups, mailing lists, newsgroups and online forums. The ability to ignore geography when requesting and providing information is one of the key advantages provided by new technologies.
- **Support groups**. Stretch the process of learning over time. Allow participants time to absorb new learning, venture back to their classrooms to practise and then return to share experiences with a support group of fellow learners. Each can share experiences: what worked, what did not work and which strategies seemed to make a difference.

- **Peer coaching**. Participants paired with a coaching peer are more likely to persevere in introducing innovative strategies than are individuals working alone.
- **Study groups**. Encourage the formation of study groups within schools to promote informal, continuous and ongoing professional development.
- **Collaboration**. Direct the collective efforts of more than one teacher towards a goal, informally or formally. For example, two or three teachers from different schools might decide on their own to work together to develop a unit that each could use. In contrast, a department in a school might formally decide that all teachers in the department will collectively work on producing a unit.

MOTIVATIONAL FACTORS

Teachers as learners have motivational needs as well as a need for knowledge and skills. Therefore, factors such as learning styles, self-confidence, professional relevance and incentive come into the equation.

LEARNING STYLES

Although there should be learning opportunities that meet the differing cognitive preferences of participants, the new technologies' ability to provide tactile experience is one of their strengths.

Suggestions for professional developers:

- Even in essentially "informational" sessions, set aside time for practical application.
- Use multi-media to provide additional motivation for visual and aural learners.
- Incorporate group activities and workshops.
- Provide access to individualized programs for "soloists."

SELF-CONFIDENCE

Although an increasing number of teachers are completely comfortable with the use of technology in the classroom, a substantial portion still have some anxiety about acquiring the new skills. Providing a learning environment that builds confidence is therefore an important part of the professional development program.

Suggestions for professional developers:

- Value the knowledge that teachers bring to technology integration.
- Understand that people are suspicious and fearful when they encounter unfamiliar situations.
- Recognize that technology invites trial and error and risk-taking. It is all right, even commendable, to experiment and make mistakes.
- Develop an environment that encourages people to co-operate and assist each other.
- Understand that professional development is a process of continuous growth, not an attempt to remediate a knowledge deficit.

- Openly acknowledge that teaching technology across the curriculum offers new challenges as well as significant advantages.

RELEVANCE

Teachers need to see the value of technology in their work.

Suggestions for professional developers:

- Encourage using technology in the daily work routines at schools.
- Provide teachers with access to modern communication and information technologies in their classrooms.
- Provide basic skills upgrading in information processing and communications.
- Provide teachers with templates, software and other tools to help with administrative tasks.

INCENTIVES

For many teachers, the opportunities presented by technology across the curriculum are intrinsically motivating. They value tools that can benefit students, improve classroom atmosphere and make a teacher's work more enjoyable. They enjoy the opportunity to learn something new, and the change of routine afforded by release time to participate in in-service programs. They are rewarded by opportunities to work collaboratively with other teachers and conduct self-directed professional development activities.

However, intrinsic motivation will not keep all teachers involved in professional development programs.

Suggestions for professional developers:

- Build recognition and respect into programs. Provide opportunities to conduct and publish research. Have teachers create materials, units and other tools for publication and distribution to other teachers.
- Invite teachers to share their experiences with learning and integrating technology in a district newsletter.
- Allocate funds for technology-related projects and teacher participation in conferences.
- Arrange with universities for independent studies and challenge examinations leading to university credit.
- Pay registration fees for professional development events, or award bursaries to teachers who are engaged in relevant post-graduate education.
- Develop employee purchase plans to assist with the acquisition of personal computer hardware.
- Provide free software in return for participation in professional development activities.
- Lend equipment to teachers to support their professional development activities.

- Reward mentors. In one jurisdiction those who complete mentor training receive a laptop computer and Internet access in their classroom for the duration of their time spent as a mentor.
- Provide certificates for attending professional development events.
- Make teachers aware of potential sources of funding for special projects; e.g., the Alberta Teachers' Association and regional consortia.

OTHER ENVIRONMENTAL FACTORS

Professional development occurs in the context of the characteristics and policies of schools and school districts. Time, school facilities, funding policies and technical support, for example, have an impact on professional development and therefore warrant consideration.

TIME

Teachers often state that the time required for professional development should not be added on to their current workload. They also may be hard pressed to give more of their time at the expense of family and personal life. If they are required to do so, they are unlikely to be receptive to learning due to fatigue or stress. It is necessary, therefore, to find time for teachers to participate in professional development.

Suggestions for professional developers:

- **Purchased time**. Although providing substitute teachers is expensive, it is one way to find the time teachers need to participate in professional development activities without increasing the demands placed on them.
- **Reassigned/reallocated time.** Assign other certificated staff to cover or assume responsibilities normally assigned to the classroom teacher. For example, the principal and vice principal might occasionally be willing to take large groups of students to the gym for a special program. Similarly, the teacher librarian or school counsellor might occasionally conduct classes in place of the scheduled teacher.
- **Restructured/rescheduled time**. Defer duties to another time or alter the timetable; for example, add a few minutes to the school day in order to accumulate time for professional development at a later date.
- **Better used time**. Examine school routines to find a more efficient and less time-consuming way to accomplish some tasks; e.g., distributing information in a more efficient manner (memos, e-mail or voice mail) delegating administrative tasks to smaller groups to avoid meetings involving the whole staff, using parent volunteers to assist with non-teaching tasks.
- **Common preparation time**. When teachers with similar teaching assignments have common planning periods, it may be possible to plan more efficiently by working collaboratively. In larger schools, it may be possible to block relief time for these teachers into the same time slots. In smaller schools, this may be achieved only by sharing with teachers who work at other schools. Collaborative work does not need to be synchronous; it can be asynchronous and as simple as exchanging lesson and unit plans via e-mail.

- **Collaborative projects** have a way of "creating" time because participants choose to work together.

SCHOOL FACILITIES AND EQUIPMENT

While some schools offer state of the art facilities, many require remodelling and renovation to accommodate the effective integration of technology. The physical environment of a school alone should not be seen as a deterrent to teaching technology across the curriculum. However, differences among facilities need to be acknowledged and taken into account.

A practical way to begin might be to make a chart of the kinds of equipment available and the programs being used at the school site.

INVENTORY OF HARDWARE AND SOFTWARE

Location	Number of Stations	Type of Hardware	Software Loaded	Availability/ Access

Shortcomings in the quantity and quality of resources can be discouraging, but being prepared for it helps to promote resourcefulness. Quite often, staff members, parents or even students can find ways to make older equipment work for them.

Training off-site is often more relaxing and exciting for participants, but there are inherent dangers if the off-site location has significantly better technological resources than participants are accustomed to. When planning to use off-site locations, keep these points in mind:

- Participants who return to schools that do not have the most current equipment may be disappointed and feel that the professional development program is not applicable in the real world.
- If participants raise questions about potential problems, professional developers need to remember that they are facilitators, not repositories of answers.
- Other factors to consider include travel time, length of session, convenience and comfort.

Online professional development brings up the issues of access and time. There must be easy access to hardware and software, and access to the Internet at a speed that does not make downloading files a burden. Also, online professional development still requires *time*, and frequently more time than we estimate.

FUNDING

Funding, which already is stretched in many jurisdiction and school budgets, may be the most significant factor of all. Decisions about professional development budgets may be influenced by:

- an effective technology plan that incorporates the costs of professional development,
- a clear, well-written implementation plan for professional development, including a budget that uses existing funds in an innovative but responsible manner, and
- accurate records of professional development sessions offered, attendance and feedback from participants.

What is the **real cost** of acquiring and using technology in school? Teachers have expressed concerns that past efforts at technology integration have focussed on acquiring hardware, with little or no consideration of the other costs of ownership. Other costs to be considered include:

- software (purchase and/or licencing),
- maintenance,
- technical support,
- evergreening of hardware and software,
- network costs, and
- professional development.

Professional developers and technology consultants need enough flexibility to allocate funds for expenses that may not have been initially recognized or anticipated, or to re-assign funds from one use to another. If the real costs of technology are recognized, there should be opportunities to fund items other than hardware.

Site-based administration may or may not allow for more flexibility of funding.

Professional development budgets may or may not have the flexibility to vary cost items or introduce additional items.

In many jurisdictions, schools must purchase the services of the professional development facilitator directly on a per-service basis. This may or may not be an efficient model, but at least it affords the opportunity to attempt creative approaches at different sites.

TECHNICAL SUPPORT

The more time teachers spend in maintaining, repairing or fine-tuning technical apparatus, the less time there is to prepare lessons and projects. Requiring teachers to learn additional technical skills because of inadequate technical support is likely to discourage them from embracing the new technology. It is important to bring technical support as close as possible to teachers.

A professional development program needs to take into account the level of technical support available to teachers in the following areas:

- **Network support.** Most schools have local area and wide area networks. The network must be operationally maintained, and personnel with the prerequisite technical knowledge must be immediately available to resolve operating problems. (Before offering a professional development event, take precautions to ensure that networks are operational and an adequate support structure is in place.)
- **Hardware support.** A substantial level of technical support is required to keep individual computers operational. Such technical support should not be considered an add-on to existing teaching duties. New computers need to be set up, loaded with software and integrated into existing networks. Old computers require maintenance and upgrading to remain usable.
- **Software support.** School jurisdictions should consider providing client support on the software packages that are most commonly used in their system. Such support might include a preview facility where teachers can evaluate more advanced software.
- **Curriculum support.** Curriculum specialists and other instructional support personnel will devote an increasing proportion of their time to providing advice about teaching technology within their areas of specialization.

Questions for Educational Leaders...

What am I doing to enhance the art of the possible?

- ❑ Am I opening channels of communication?
- ❑ Does my professional development environment provide for social interaction?
- ❑ Does my professional development program allow for different learning styles, building confidence and professional relevance?
- ❑ Do I provide incentives and not depend solely on intrinsic motivation?
- ❑ Do I promote resourcefulness in the use of our facilities?
- ❑ Do I accommodate the need for time and money for professional development?
- ❑ What is the state of technical support for technology across the curriculum in my school or school jurisdiction?

APPENDIX A
PROMISING PRACTICES

"Just give me something I can use!" This frequently heard cry for concrete illustrations of positive practice reflects teachers' ability to borrow, adapt, blend and improve material from a myriad of sources to provide a stimulating learning experience. An idea gleaned from somewhere else can serve as a springboard for innovation. The original notion evolves to fit a new context, fulfill a different purpose or create a new vision.

The following examples of professional development activities and projects may provide fodder for brainstorming, collaboration or modification. System and school administrators, technology co-ordinators, teachers and professional development specialists all should find "something they can use."

WORKSHOPS

- Facilitating Teacher Access to Technology *(Edmonton School District No. 7)*.....43
- One-Day Series of Workshops *(Elizabeth Barrett Elementary School)*.....45
- Web Site Development Project *(Banded Peak School/Galileo Centre)*.....46
- Corel Presentations Workshop *(Meadowbrook Middle School)*.....47
- PowerPoint Presentation Workshop *(William E. Hay Composite High School)*.....49
- SmartBoard Workshop *(R. J. Hawkey Elementary School)*.....50
- Technology Applications in Mathematics *(Viscount Bennett Centre)*.....52
- Technology Training Initiative *(Lethbridge School District No. 51)*.....53
- Technology Across the Curriculum Summer Workshops *(Edmonton Regional PD Consortium)*.....54

MENTORING PROJECTS

- Certificate in Educational Technology *(Leo Ussak Elementary School)*.....57
- Galileo Teacher Secondment Project *(Banded Peak School/Galileo Centre)*.....59
- Teacher-Librarian Mentorship Program *(Sun Valley Elementary School)*.....60
- Teacher Explorer Centres *(Calgary School District No. 19)*.....62
- Long-Term District Training Plan *(Lethbridge School District No. 51)*.....63
- Technology Leadership and Mentorship Summer Institute *(Edmonton Regional PD Consortium)*.....65
- Teaching and Learning with Technology *(Chinook's Edge School Division No. 73)*....66
- Facilitating Teacher Access to Technology *(Alberta Regional Consortia)*.....67

SELF-DIRECTED PROFESSIONAL DEVELOPMENT **PAGE**

- Guide Booklets/PDF Files *(Calgary Roman Catholic Separate School District No. 1)*.....69

PROFESSIONAL DEVELOPMENT FOR INNOVATORS

- Project Pegasus: A Research-Based Approach *(Edmonton School District No. 7)*.....71
- TELUS Learning Connection *(Provincial Initiative)*.....73

WORKSHOPS

FACILITATING TEACHER ACCESS TO TECHNOLOGY

School/Jurisdiction:
Edmonton School District No. 7

Address:
Centre for Education
One Kingsway
Edmonton, AB T5H 4G9

Contact Person: Pat Redhead, Consultant

Telephone: (780) 429–8313
Fax: (780) 425–0625
E-mail: predhead@epsb.edmonton.ab.ca

Timeframe: Ten-day summer workshop; four Saturday workshops; computer loan period of one year

Need Being Filled
Teachers who are novice computer users require a long-term training program and the opportunity to continue to learn at home or at school throughout the year.

Professional Development Activity
The Technology Incentive Program is a three-way partnership. Schools invest in the cost of professional development, teachers invest the time to learn and the district contributes the use of a computer system for a year. Teachers attend ten days of professional development in the summer and four Saturdays throughout the school year. Following the summer workshop, teachers take a new computer system home, or to their school, to use for a year. At the end of the year, the computer systems are sold to the schools, or to the participants, thereby funding the program at a reduced level for the next year. The school pays the costs for each teacher selected for the program.

What It Took to Make This Activity Work
Computer ownership has proven to encourage increased use of technology. The board's decision to front-end computer costs is important. This activity provides support and training to teachers for a long period of time. By working with the latest equipment in the most convenient location, participants increase their skill and confidence in using technology to enhance teaching and learning.

Materials and Resources
The original investment of $753,000 paid for the initial set of computer stations, which included software and inkjet printers. This formed the foundation for a self-sustaining project lasting over several years. As well, schools paid for the cost of professional development for teachers selected for the program.

Additional Comments
Since its inception in 1996/1997, 358 teachers have participated, with another ninety-six projected to participate by 2000.

Note: A similar program was instituted by the Calgary Roman Catholic Separate School District No. 1. Further details about that program are available from:

Contact: Dean Jarvey, Technology Facilitator.
Telephone: (403) 298–1629 ***Fax:*** (403) 249–3054
E-mail: dean.jarvey@mail.crcssd1.calgary.ab.ca

ONE-DAY SERIES OF WORKSHOPS

School/Jurisdiction:
Elizabeth Barrett Elementary School
Rocky View School Division No. 41

Address:
605–4 Avenue N.
Cochrane, AB T0L 0W2

Contact Person: Deb Rougeau-Bell, Cochrane Area Technology Committee

Telephone: (403) 932–3151 ***Fax:*** (403) 932–3157
E-mail: ebarrett@rockyview.ab.ca

Need Being Filled
To provide professional development for kindergarten to grade 12 teachers focussing on integrating technology into the curriculum. Year 1 focussed on writing a vision and philosophy for the area; in Year 2, the goal was to write a technology scope and sequence for kindergarten to grade 12, and to assist teachers with using technology as a tool for student learning.

Professional Development Activity
The Cochrane Area Technology Committee planned and implemented a professional development day on integrating technology into the curriculum for kindergarten to grade 12. Although the day was planned to meet the needs of the seven schools in the Cochrane area, an invitation was extended to other interested teachers in the division. Speakers focussed on practical ideas and came from within and outside the division. The day was divided into three sessions of seventy-five minutes each. Some sessions were hands-on and others were demonstration, with five schools being used to increase opportunities for hands-on learning. A software fair was organized as a "drop-in" event for interested teachers.

What It Took to Make This Activity Work
Jurisdictional support was very important since divisional personnel were involved in planning, some presentations and technical support. As well, school administrators in Cochrane co-operated by making facilities and equipment available. Approximately 350 teachers from the division attended.

The feedback indicated the day was a success because it: (1) focussed on practical ideas, (2) included the element of hands-on learning, (3) had a variety of sessions meeting needs at all levels, (4) had sessions for specialists such as music, French immersion, etc., (5) included sessions on the use of the Internet in the classroom, (6) held a software fair at a central location, (7) offered professional development planned by teachers for teachers and (8) provided a division technician on hand to address technical problems.

Materials and Resources

- a variety of speakers addressing topics at all grade levels and areas of the curriculum,
- a host site where many computer labs and different kinds of software are accessible, and
- jurisdiction support for professional development.

Additional Comments
Teachers expressed an interest in another similar day in 1998/1999. This is being planned as well as follow-up sessions after the one-day professional development opportunity.

WEB SITE DEVELOPMENT PROJECT

School/Jurisdiction:
Banded Peak School/Galileo Centre
Rocky View School Division No. 41

Address:
P. O. Bag 4
Bragg Creek, AB T0L 0K0

Contact Person: Sharon Friesen

Telephone: (403) 949–2292 ***Fax:*** (403) 949–4067
E-mail: bpeak@rockyview.ab.ca or friesens@rockyview.ab.ca

Timeframe: Five full school days

Need Being Filled
To provide an authentic activity (web site development) that would allow teachers with a wide variety of backgrounds and experiences to wrestle with the issues associated with "teaching and learning with technology." To provide a core of lead teachers to assist the Calgary Regional Consortium, their schools and colleagues.

Professional Development Activity
Pat Clifford and Sharon Friesen conducted a course at Banded Peak, challenging sixteen teachers from five Alberta jurisdictions to develop a web site. The course ran for five full school days and was fully funded by the Calgary Regional Consortium. A listserver was established to facilitate dialogue when the participants were not together. As each participant was encouraged to think differently about technology and the challenges it presents, they came out with a much clearer understanding that they had to change some fundamental aspects of teaching and learning in order to integrate technology successfully.

What It Took to Make This Activity Work
Banded Peak School has a mandate to provide innovative technological professional development. Staff have been given release time to prepare for delivery of such programs. The activity modelled a constructivist and project-based approach. Participant learning was intense, sustained and required collaboration in order to produce something of substance. The connection to student learning was clear. Adequate time was given to introduce and consider ideas, and have participants go away and try them. Communication was facilitated through e-mail on the listserver.

Materials and Resources

- funding for course and teacher release time,
- computers/facility,
- project-based software such as Zebu and NetMeeting, and
- web authoring multimedia such as Hyperstudio, Palace Chat, e-mail and Explorer.

COREL PRESENTATIONS WORKSHOP

School/Jurisdiction:
Meadowbrook Middle School
Rocky View School Division No. 41

Address:
1796 Meadowbrook Drive
Airdrie, AB T4A 1V1

Contact Persons: June Fox, Teaching Assistant / Bill Bell, Principal, Ralph McCall School

Telephone: (403) 948–5656
Fax: (403) 948–5672
E-mail: meadowbk@rockyview.ab.ca

Timeframe: Two 3-hour sessions

Need Being Filled
Staff discussion of the Alberta Education Teaching Quality Standards document identified a need for practical, hands-on training in the use of presentation software. There also was a need to set up peer coaching triads for long-term mentoring.

Professional Development Activity
Teachers requested assistance in learning presentation software. Using Corel Presentations, Bill Bell and June Fox offered a workshop to teachers from Meadowbrook School. The opportunity was offered to staff from another middle school as well. Before the first session, approximately twenty participants were asked to form pairs or triads, choose a topic of interest and come prepared with a rough outline of their slide information on a sheet of legal paper folded into eight rectangles. As well, each triad was required to bring photographs, audio, etc. which could be scanned into their presentations. Each session featured a brief period of instruction using a SmartBoard, followed by time for the triads to work together to build their own presentations. The sessions modelled a constructivist approach which then could be incorporated into the classroom to improve student learning. Bill and June were available to troubleshoot and give individual help.

What It Took to Make This Activity Work
The content of the workshop was determined by the needs/interests of the participants who then were encouraged to do a presentation on something valuable or interesting to them. The principal of the initiating school was committed to the activity and supported it by providing a meal for participants and acknowledging the skills learned as part of each teacher's professional growth plan. As well, the jurisdiction validated the six-hour workshop as effective PD by granting a day off from a regularly scheduled professional development day. Finally, the learning was practical and meaningful as the triads were able to help each other solve problems and make discoveries about the capabilities of the program.

Materials and Resources
Knowledgeable facilitators, computers (with microphones), two colour scanners, digital camera, LCD projector, SmartBoard, food.

Additional Comments

Participants shared their presentations with other class members and were presented with certificates outlining the skills that they had learned. It was suggested that these certificates could become part of the teacher's portfolio and/or professional growth plan. The food provided a welcome break and made an enjoyable opportunity for socializing.

POWERPOINT PRESENTATION WORKSHOP

School/Jurisdiction:
William E. Hay Composite High School
Clearview Regional Division No. 24

Address:
4904–54 Street
Stettler, AB T0C 2L1

Contact Person: David Teasdale

Telephone: (403) 742–3466
Fax: (403) 742–3260
E-mail: dteasdale@clearview.ab.ca

Timeframe: Three workshops of fifty minutes each

Need Being Filled
Having placed computers on the desk of every teacher in the school, the administration believed that teachers needed basic training in computers, specifically Microsoft PowerPoint software.

Professional Development Activity
Each teacher was asked to design a course outline using PowerPoint. David provided instruction in the basics: title slide, content slides, transitions/timings and actual content. Participants were divided into three groups of eight for separate workshops, and the activity took about fifty minutes. At the end, the attendees had the skills to be able to make another presentation, or guide students in the use of the software.

What It Took to Make This Activity Work
Although this activity was initiated by the administration, each teacher had an in-class computer so that follow-up and use in the classroom was easier. The activity was relevant to the teachers; they could see themselves using this in a classroom setting. Each workshop was small with only eight to ten teachers attempting the guided activity. Individual teachers were able to practice this activity by themselves, providing a hands-on experience.

Materials and Resources
MS PowerPoint 97, workshop facilitator.

Additional Comments
People providing professional development sessions, as well as those requesting them, need to be aware that if there is no direct relevance to participants' lives, no further action will be taken after the workshop. Professional development sessions must be hands-on with small groups of people, and professional development is seldom successful if forced on people.

SMARTBOARD WORKSHOP

School/Jurisdiction:
R. J. Hawkey Elementary School
Rocky View School Division No. 41

Address:
233 Big Springs Drive
Airdrie, AB T4A 1C4

Contact Person: Barry Gore, Assistant Principal

Telephone: (403) 948–3939
E-mail: bgore@rockyview.ab.ca

Fax: (403) 948–3941

Timeframe: A one-time workshop of 1.5 hours

Need Being Filled
To meet staff requests for training in the use of a newly purchased SmartBoard.

Professional Development Activity
The PD activity was both a demonstration and hands-on experience for ten teachers who wanted to learn to use the SmartBoard for instruction. It involved the following components:

1. set-up and orientation of the SmartBoard, including preferred location,
2. use of the SmartNotebook(tools, text, graphics and draw capabilities),
3. use of the SmartKeyboard with SmartNotebook,
4. use of the SmartNotebook and SmartKeyboard for:
   a. developing a planning web for writing,
   b. categorizing information, and
5. use of the Internet to search a topic using the SmartBoard.

What It Took to Make This Activity Work
Teachers had previously expressed a desire to learn how to use the newly purchased SmartBoard. Consequently the incentive for the professional development came from the bottom up. An outside facilitator was unnecessary as the assistant principal had the knowledge to provide the needed instruction. This also meant that he was available throughout the school year to advise and assist teachers with integrating their skills into the classroom. Teachers were able to ask questions, pose "what if..." questions and test/see the results. They were able to have hands-on experience to try a solution or example once it was given. Content was specific to teachers' needs—not just generic samples shown by a consultant who was unaware of the school's specific needs/goals.

Materials and Resources
SmartBoard and associated software, LCD projector, Pentium computer, Internet connection, project consultant.

Additional Comments

Teachers generated the following ideas for integrating of SmartBoard technology into the curriculum:

- a mathematics project involving stock market analysis and graphing,
- research/ web site investigation in science, language arts and social studies,
- brainstorming and webbing for writing pre-planning in language arts and social studies, and
- collaborative web site creation.

TECHNOLOGY APPLICATIONS IN MATHEMATICS

School/Jurisdiction:
Viscount Bennett Centre
Calgary School District No. 19

Address:
2519 Richmond Road S.W.
Calgary AB T3E 4M2

Contact Person: Walter Savill, Technology in Learning Specialist

Telephone: (403) 777–8750
Fax: (403) 777–8759
E-mail: wsavill@cbe.ab.ca

Need Being Filled
To examine the role of technology and draw programs and spreadsheet applications in grades 3 to 6 mathematics.

Professional Development Activity
A workshop was held on how to integrate technology into the Western Canadian Protocol mathematics curriculum. The focus of the workshop was the use of draw and spreadsheet programs with the Quest 2000 Math series. Activities from the Quest 2000 Technology Package were reviewed.

What It Took to Make This Activity Work
The materials accompanying the Quest 2000 series provide outlines for one integrated activity for each of 11 units in each of grades 3 to 6. These were used as a starting point. Time was allowed for teachers to explore the technology package and share possible meaningful ways of integrating it into the existing mathematics curriculum.

Materials and Resources
Quest 2000 technology package, any office productivity tool such as Clarisworks or Microsoft Office, facilitating personnel.

TECHNOLOGY TRAINING INITIATIVE

School/Jurisdiction:
Lethbridge School District No. 51

Address:
433–15 Street S.
Lethbridge, AB T1J 2Z5

Contact Person: Gary Heck, Technology Project Director

Telephone: (403) 380–5290
Fax: (403) 320–9117
E-mail: gary.heck@lethsd.ab.ca

Timeframe: One year

Need Being Filled
To increase the comfort level in the use of a new system-wide computer network, especially Microsoft Windows 95 and Microsoft Office 97.

Professional Development Activity
The district had neither the time nor human resources to train all staff in basic computer skills, so they decided to provide funds and contract out the training. A Technology Training Reserve Fund of $50,000 was established to provide a minimum of ten hours training at approximately $120 per teacher. As well, $200 per support staff member was allocated to school budgets to provide them with basic training. For this price, the Lethbridge Community College Business Training and Development Centre provided either a self-paced or instructor-led lab program. Another private company and a district school also contracted to provide training services. More than 300 of 425 teachers and all qualifying support staff took advantage of this opportunity.

What It Took to Make This Activity Work
The program arose out of a need identified in a staff survey that was part of the district's technology plan. The district supported professional development with a major funding commitment. Recognition of staff efforts came in the form of a certificate earned at the completion of ten hours of training and, if they produced their certificate, a free copy of Office 97 for personal use.

Materials and Resources
Funding in excess of $50,000; a project director, private companies to contract the training.

Additional Comments
This was a major training activity that had to encompass large audiences in a very short period of time. It was very successful in introducing people to the operating system and the productivity/application software; however, it was just one component of an ongoing district technology training program.

TECHNOLOGY ACROSS THE CURRICULUM SUMMER WORKSHOPS

School/Jurisdiction:
Edmonton Regional PD Consortium

Address:
748 Education South
University of Alberta
Edmonton, AB T6G 2G5

Contact Person: Pat Redhead, Consultant

Telephone: (780) 429–8313
Fax: (780) 425–0625
E-mail: predhead@epsb.edmonton.ab.ca

Timeframe: Five-day summer workshop; two Saturday call-back sessions

Need Being Filled
To learn how to use technology effectively across the curriculum, teachers must be actively involved in creating plans and materials to use with students. They must engage in long-term projects that assist them in putting theory into practice in their classrooms.

Professional Development Activity
Throughout the summer of 1998, six workshops were held at various locations in the greater Edmonton area. A variety of topics provided opportunities for eighty-eight teachers at all levels to participate.

The program provided support to teachers using technology to enhance student learning in language arts, mathematics, science and social studies. The participants had a range of needs. Some were integrating technology for the first time whereas others were relatively experienced and confident. Because of the nature of the program, everyone had the opportunity to learn and grow according to their personal strengths, interests and needs.

Following the summer workshop, participants returned to their jurisdictions and schools with plans they could use with their students. Two call-back sessions and a listserver provided opportunities for continued collaboration. Plans will be published on a web site so that other teachers can learn from their experiences.

What It Took to Make This Activity Work
It took collaboration among several school jurisdictions to create and host these summer workshops. Six regional PD consortia provided a philosophical and pedagogical framework, and workshops were created from this foundation. The instructors participated in a leadership development program in May, June and July of 1998 in preparation for the summer workshops.

Materials and Resources
The Edmonton Regional PD Consortium (ERC) invested in the foundation work and paid for a project manager and a project assistant. The jurisdictions provided the venues in the form of computer labs in schools and central offices. Individuals, their schools or the ERC paid the registration fees of the participants.

Additional Comments

Technology Across the Curriculum workshops will be offered again, beginning at the North Central and the Greater Edmonton teachers' conventions. Additional workshops will be held in the summer of 1999.

MENTORING PROJECTS

CERTIFICATE IN EDUCATIONAL TECHNOLOGY

School/Jurisdiction:
Leo Ussak Elementary School
Keewatin Regional Education Authority

Address:
GNWT Postal Bag 002
Rankin Inlet, NT X0C 0G0

Contact Person: William Belsey

Telephone: (403) 932–1748
Fax: (403) 932–1748
E-mail: belsey@mail.com

Web Site: <http://www.Inukshuk.com/William_Belsey.html>

Timeframe: Weekly two-hour sessions for one university semester

Need Being Filled
To provide formal staff training in technology based on a needs assessment done at the beginning of the school year.

Professional Development Activity
With the support of McGill University and Nunavut Arctic College, twelve staff from Leo Ussak School worked toward a Certificate in Educational Technology from McGill's Faculty of Continuing Education. Staff met weekly after school for two hours. William Belsey introduced the skill sets needed for each new learning unit. Four major class assignments were required: a) a class newsletter, b) a spreadsheet, c) a database including mailmerge; and d) a final comprehensive assignment that integrated all of the previous elements. All assignments supported and reflected the needs of the classroom teachers and their programs. For example, class newsletters that were created actually went home to the parents. Mr. Belsey provided ongoing support throughout the week and the remainder of the year. All twelve participants completed the class.

What It Took to Make This Activity Work
The activity was needs driven with a "grass roots" origin. Participants directed the nature of the professional development and therefore were more committed to it. Further, there was a commitment from the jurisdiction and from supporting institutions. Personnel, time and materials were made available. The activity was done within school hours using readily available and familiar school resources, and was completed within a short timeframe. There also was a collegial form of mentoring in place to provide long-term support throughout the school year. Learning was hands-on, relevant and practical, and opportunities were provided to incorporate new skills into the curriculum to benefit student learning. Teachers received immediate recognition of their work: a certificate from McGill.

Materials and Resources

- course instructor/facilitator,
- software Applications 4332-200 course, which features Clarisworks 4.0 for the Macintosh platform, and
- a mix of traditional text, hypermedia and Internet use.

Additional Comments

Effective information/technology training and professional development must be needs driven and use the resources available in the school. The timeframe must be kept short to accommodate limited teacher time and the fast pace of technological change. Such professional development needs long-term support through mentoring relationships between professional colleagues who are on the same school staff.

GALILEO TEACHER SECONDMENT PROJECT

School/Jurisdiction:
Banded Peak School/Galileo Centre
Rocky View School Division No. 41

Address:
Postal Bag Service 4
Bragg Creek, AB T0L 0W0

Contact Person: Brenda Gladstone, School Business Partnerships Co-ordinator

Telephone: (403) 949–2292 ***Fax:*** (403) 949–4067
E-mail: bpeak@rockyview.ab.ca or bgladstone@rockyview.ab.ca

Web Site: <http://www.rockyview.ab.ca/bpeak/galileo>

Timeframe: Full-time teacher for one school year

Need Being Filled
To provide an opportunity for professional growth and learning of benefit to the organization and to the individual.

Professional Development Activity
In the 1997/1998 school year, the first project teacher seconded from another school jurisdiction was appointed to work at the Galileo Centre for one year. The seconded teacher taught approximately two-thirds of the time and spent the balance of the time in curriculum development, professional learning and classroom-based research. There is an opportunity for some work to be credited through the Centre's partnership with the University of Calgary.

What It Took to Make This Activity Work
As teachers must apply for a limited number of openings, they demonstrate a commitment to the program. As well, the host jurisdiction has provided a facility and an atmosphere where teachers participating in this program are able to try new methods and take risks while being supported by other teachers and resources. Partnerships with the business community and the University of Calgary expand the scope of the program. The funding for one year affords sufficient time to personally investigate new ideas and change professional practice as appropriate. Moreover, an opportunity to develop lasting professional relationships allows for long-term mentoring and sharing. Finally, the professional development occurs in conjunction with actual classroom teaching so that opportunities for curriculum integration are immediate and the teacher can observe the impact on student learning.

Materials and Resources
The cost of one full year's teacher salary is raised through corporate and private donations.

Additional Comments
In the 1998/1999 school year the project was expanded to accommodate four teachers. It is hoped that in subsequent years the project will continue to expand to accommodate fourteen seconded teachers.

TEACHER-LIBRARIAN MENTORSHIP PROGRAM

School/Jurisdiction:
Sun Valley Elementary School
River East School Division No. 9

Address:
125 Sun Valley Drive
Winnipeg, Manitoba R2G 2W4

Contact Person: Michelle Larose-Kuzenko, Teacher-Librarian/Technology Co-ordinator

Telephone: (204) 663–7664
Fax: (204) 668–9360
E-mail: mlarose@minet.gov.mb.ca

Web Site: <http://204.112.18.6/schools/sun.valley/Index.html>

Timeframe: As needed, depending on the length of a subject area project

Need Being Filled
To facilitate authentic in-school professional development in technology integration that is ongoing and of benefit to the teacher and the student.

Professional Development Activity
The teacher-librarian functions as technology leader and facilitator at the school level. The classroom teacher and the teacher-librarian plan co-operatively to incorporate technology into curriculum areas and teach the class together. PD is focussed, specific, meaningful and continuous.

What It Took to Make This Activity Work
In this jurisdiction, the teacher-librarian functions as technology leader and facilitator. Over the years, as the other teachers became comfortable with the technology, they have themselves become mentors for colleagues just starting out. Thus, the jurisdiction has created a pool of experts with technology skills as well as curriculum skills in certain areas. Professional development is therefore embedded in the curriculum and skills are taught to both students and teachers simultaneously. The facilitator is able to work one-on-one, or with a small group, to make learning more effective. Teachers are able to take risks while being supported by a knowledgeable mentor and to witness the impact on students' learning. Teachers are expected to take ownership and expand on the skills learned, but have ready access to support.

Materials and Resources

- on-site technology facilitator,
- computers and appropriate software, and
- router providing on-line access in the multimedia lab and in all the classrooms.

Additional Comments

The rationale behind the teacher-librarian functioning as technology facilitator:

- Technology is a source of information and the teacher-librarian is recognized as an information specialist.
- Technology is viewed as a means to an end rather than a subject, so we do not teach computers; rather the learning is the goal with the various technological tools taught on an as-needed basis for a real purpose: to support, enhance and improve learning.

TEACHER EXPLORER CENTRES

School/Jurisdiction:
Collaborative Learning Community 5
Calgary School District No. 19

Address:
2336–53 Avenue S.W.
Calgary, AB T2E 1L2

Contact Person: Cindy Lee Martin, Technology in Learning Specialist

Telephone: (403) 777–8760 extension 2227 ***Fax:*** (403) 777–8769
E-mail: clmartin@cbe.ab.ca

Timeframe: Two years

Need Being Filled
To move from knowledge to implementation in the classroom using a constructivist approach with active teacher involvement, and with teachers reflecting on and articulating what they have learned in their own contexts.

Professional Development Activity
Eight Teacher Explorer Centres were developed and funded for two years. They function as sites for workshops or instructional tours, thereby providing for ongoing discussion between schools on issues such as class management, technology planning and staff development. Sites also serve as a resource for finding answers to school-based concerns about technology. Projects developed in the centres in the last two years include web servers, student home pages, student-run help lines, community video and communications projects, curriculum projects using technology in all subject areas and the design of staff development materials.

What It Took to Make This Activity Work
Time is the critical element. Teachers were given time to learn so they made progress towards increasing a school's capacity to meet learner needs. Time was provided through the funding commitment made by the jurisdiction, which also provided facilities, equipment and teacher release time.

Materials and Resources

- 0.5 release time for one teacher at each site to be the Explorer Centre teacher and a project co-ordinator,
- selected sites and equipment, and
- funding for teacher visitations and workshops.

Additional Comments
There is a need for a longer commitment than two years. The Centres must strike a balance between a) their mandate to push the leading edge through research and development at the school site and b) the system's need for viable professional development activities for all teachers.

LONG-TERM DISTRICT TRAINING PLAN

School/Jurisdiction:
Lethbridge School District No. 51

Address:
433–15 Street S.
Lethbridge, AB T1J 2Z5

Contact Person: Gary Heck, Technology Project Director

Telephone: (403) 380–5290 ***Fax:*** (403) 320–9117
E-mail: gary.heck@lethsd.ab.ca

Timeframe: Ongoing

Need Being Filled
To provide ongoing technology support for staff through a variety of professional development activities.

Professional Development Activity
Several different PD initiatives, including:

1. A budget for ongoing support staff training on specific Office 97 topics delivered by an outside consultant. Once the budget is used up, the sessions continue at a cost of $15 per hour for a two-hour hands-on session charged to the school budget.
2. Provision for technical facilitators from every school who are paid from the project budget and who meet regularly for training by project technicians on basic operation and administration of their local area network.
3. Provision for implementation guides from every school, who are paid from the project budget and meet regularly to deal with planning and implementation issues at the school site. Their work focusses on teaching and learning with technology as well as on implementing the Information and Communication Technology (ICT) Interim Program of Studies. They provide alignment between district and school goals/plans.
4. Several teacher workshops on "early closing" Friday afternoons on Internet and e-mail use, etc. The project budget may cover substitute costs for "lead" teachers, or teachers can apply their Alberta Teachers' Association professional development money.
5. Preview sessions to examine $10,000 worth of software purchased by the district. Teachers attending these sessions also discuss how the software might best be integrated into the curriculum.

What It Took to Make This Activity Work
The program works because of the commitment of funds and personnel to an ongoing district professional development and training plan and because teachers are supported in, and accountable for, accessing the activities provided through the plan.

Materials and Resources
Funding, project director, release time for school personnel, hardware and software, technical expertise.

Additional Comments

Professional development and training in technology are a joint responsibility of the district and the schools. Teachers are accountable for accessing services or training that meets their needs to deliver programs of study, including the ICT program of studies.

TECHNOLOGY LEADERSHIP AND MENTORSHIP SUMMER INSTITUTE

School/Jurisdiction:
Edmonton Regional PD Consortium

Address:
748 Education South
University of Alberta
Edmonton, AB T6G 2G5

Contact Person: Pat Redhead, Consultant

Telephone: (780) 429–8313
Fax: (780) 425–0625
E-mail: predhead@epsb.edmonton.ab.ca

Timeframe: Five-day summer workshop; two Saturday call-back sessions

Need Being Filled
A cadre of leaders and mentors is required to assist teachers in learning to use technology effectively across the curriculum. They must learn to facilitate and support the learning of their colleagues rather than adopting the role of an expert.

Professional Development Activity
A 1998 summer institute was held at the University of Alberta. Forty participants engaged in hands-on workshops, plenary sessions and cohort group sessions throughout the week. The teachers, consultants, department heads, administrators and university instructors created plans and projects to use as they prepared to work with and mentor other teachers.

Following the summer institute, participants returned to their jurisdictions and schools with plans to work with their colleagues. Two call-back sessions and a listserver provided opportunities for continued collaboration. Plans will be published on a web site so that other staff developers can learn from their experiences.

Ten participants chose to extend their participation so that they could receive graduate credit from the University of Alberta.

What It Took to Make This Activity Work
It took collaboration among school jurisdictions, the University of Alberta and the Alberta Teachers' Association to create and host this summer institute. The six regional PD consortia provided the philosophical and pedagogical framework, and the institute was created from this foundation.

Materials and Resources
The Edmonton Regional PD Consortium (ERC) invested in the foundation work and paid for a project manager, a project assistant and a web site. The University of Alberta provided the venue, which included meeting rooms and computer labs. Individuals, their schools or the ERC paid the registration fees.

Additional Comments
The Technology Leadership and Mentorship Institute will be offered again, beginning at the North Central and the Greater Edmonton teachers' conventions. Another institute will be held in the summer of 1999.

TEACHING AND LEARNING WITH TECHNOLOGY (TLT)

School/Jurisdiction:
Chinook's Edge School Division No. 73

Address:
4904–50 Street
Innisfail, AB T4G 1W4

Contact Person: Barry Allen, Project Co-ordinator
Peter Darby, Associate Superintendent

Telephone: (403) 227–7070 ***Fax:*** (403) 227–3652
E-mail: ballen@chinooksedge.ab.ca; pdarby@chinooksedge.ab.ca

Timeframe: Three-day workshop for teachers followed up with a month of mentorship in their school.

Need Being Filled
Teachers need a mentor to assist them in developing and implementing classroom projects which integrate technology into teaching and learning.

Professional Development Activity
The project co-ordinator hosts a three-day workshop on mentorship and integrating technology for two lead teachers from each of the project schools. The mentors-in-training plan a technology-enhanced curriculum project to use in their classroom as well as an exemplar for their protégés. Upon returning to the school, each lead teacher selects two protégés to mentor. The project co-ordinator provides each school with one half-day of support on each teaching day for a month. At the beginning of the month, one day of substitute teacher time is provided for the mentors and their protégés so the team can plan new technology projects for their units of study. The co-ordinator provides in-class support for the mentors and protégés in implementing the technology-enhanced unit of study. The project co-ordinator works in sixteen different schools over the year.

What It Took to Make This Activity Work
A teacher who had expertise in the integration of technology into the classroom was seconded to the project and funding was committed for teacher release time. Costs would vary, depending on the number of schools involved.

Materials and Resources
Schools across the division pooled instructional funds to cover the cost of seconding a teacher as project co-ordinator and release time for participants. Materials for the three-day workshops are based on resources developed by the joint PD consortia for TLT.

Additional Comments
Details and materials from some of the projects produced by teachers in this project are available at <http://www.chinooksedge.ab.ca/tlt>.

Note: The project is an example of the implementation of the Teaching and Learning with Technology project jointly developed by the professional development consortia across the province.

FACILITATING TEACHER ACCESS TO TECHNOLOGY

School/Jurisdiction:
Alberta Regional Consortia

Address:
4904–50 Street
Innisfail, AB T4G 1W4

Contact Persons:

Calgary Regional Consortium	Jean Hoeft, Executive Director	(403) 291–0967
Central Alberta Regional Consortium	Shirley Van Eaton, Executive Director	(403) 357–3626
East Central Alberta and Edmonton Regional Consortia	Earl Choldin, Executive Director	(780) 492–0234
Northwest Regional Consortium	Karen Egge, Executve Director	(780) 864–2767
Southern Alberta Regional Consortium	Louise Beermann, Executive Director	(403) 381–5580

Timeframe: Three 5-day TLT summer institutes were held during the summer (1998) in three of the consortia. These institutes continue during the 1998/1999 school year throughout the Alberta Regional Consortia.

Need Being Filled
Technology provides powerful new opportunities to enrich student learning across the curriculum. In order for students to have access to these new tools in meaningful ways, their teachers must be skilled in the use of technology as it applies to the Alberta curriculum.

The six Alberta Regional Professional Development Consortia have developed an innovative new program that will support teachers as they develop knowledge and skill in using technology to support student learning.

What It Took to Make This Activity Work
This is a three-part professional development program in which everyone is an active learner. All three programs provide numerous opportunities for teachers to learn and grow.

Program 1: Skill-building
Participants learn the operational skills required to use technology effectively, including file management, word processing, CD-ROM resources, the Internet, spreadsheets, databases, multimedia production and other specialized applications.

Program 2: Technology across the curriculum
Teachers create classroom strategies and projects for use with students and, in doing so, they increase their knowledge and skill in using technology effectively and critically across the curriculum.

Program 3: Technology mentorship
Participants create plans and projects to use in mentoring other teachers. They develop strategies to empower teachers and to become effective facilitators who support the learning and growth of others.

Materials and Resources
Each Consortia has funded the three TLT Institutes through their program grants.

SELF-DIRECTED PROFESSIONAL DEVELOPMENT

GUIDE BOOKLETS/PDF FILES

School/Jurisdiction:
Instructional Technology Department
Calgary Roman Catholic Separate School
District No. 1

Address:
St. Leo Centre
6220 Lakeview Drive S.W.
Calgary AB T3E 5T1

Contact Person: Dean Jarvey, Co-ordinating Teacher of Technology

Telephone: (403) 298–1629 ***Fax:*** (403) 249–3054
E-mail: dean.jarvey@mail.crcssd1.calgary.ab.ca

Need Being Filled
To produce a series of booklets/PDF files that would facilitate self-directed professional development for teachers and act as a reference and a guide for subsequent PD activities.

Professional Development Activity
Booklets were produced to accompany in-service sessions, but were made with step-by-step instructions so that teachers could work through the content without attending the workshops. These booklets were turned into PDF files and posted on the district intranet so that any employee could access and print them at any time. Schools are free to conduct their own in-service training using the booklets as guides.

What It Took to Make This Activity Work
Teachers recognize the importance of modifying programs to meet different learning styles and needs of students. Adult professional development must do the same. The effectiveness of "one-shot" workshops has been questioned. The booklets/files are one way of following up workshop training so that teachers may check for points they did not fully understand or have forgotten. As well, the booklets have been successful because they provide teachers with more choices about how they will learn—they are not bound to one delivery method and can learn at their own pace and at convenient times. The support of the jurisdiction in providing resources and release time for the writing of these booklets is essential.

Materials and Resources

- expertise, time and materials to make up the booklets,
- time to post PDF files, and
- intranet system.

Additional Comments
The booklets have been very popular and widely circulated. The goal for the 1998/1999 school year is to design in-service activities that focus on the integration of technology. Subject area specialists and technology facilitators will be involved in developing in-service programs and booklets that will be implemented using a similar model.

PROFESSIONAL DEVELOPMENT FOR INNOVATORS

PROJECT PEGASUS: A RESEARCH-BASED APPROACH

School/Jurisdiction:
Edmonton School District No. 7

Address:
Centre for Education
One Kingsway
Edmonton, AB T5H 4G9

Contact Person: Pat Redhead, Consultant

Telephone: (780) 429–8313
Fax: (780) 425–0625
E-mail: predhead@epsb.edmonton.ab.ca

Timeframe: One school year

Need Being Filled
Teachers need to understand how technology can be used effectively to enhance student learning. By conducting action research projects in the practical context of their classrooms, their confidence in using technology increases.

Professional Development Activity
In 1996/1997, the initial year of Project Pegasus, twelve schools participated in the project, choosing either language arts or mathematics, and representing all levels of schooling in their projects. Teachers used action research methodology to develop a practical theory about how learning is affected when technology is used as a learning and teaching tool. They identify a problem or area of focus for their research; state a hypothesis about how technology will impact learning; plan and implement a strategy using the technology; observe what happens; reflect on what occurred; and revise their practice until satisfactory outcomes are achieved. A monograph about the project was made available for purchase so that all teachers could benefit from the project. Funds raised were intended to help support the continuation of the project.

Currently, nineteen schools are participating in language arts, mathematics, science, social studies and interdisciplinary studies. A collaboration with the University of Alberta allows participants to choose to meet the requirements for a 3-credit course, EDES 501. Outcomes of this initiative can now be accessed online at <www.epsb.edmonton.ab.ca/pd/pegasus>.

What It Took to Make This Activity Work
This PD activity focusses on student learning rather than on technology. The collaborative nature of the project engages participants in thoughtful discussion and planning. Involvement in the action research process contributes to teacher understanding of curriculum, instruction and how the technology affects student learning. The partnership with the University of Alberta provides tangible recognition of teachers' efforts.

Materials and Resources
Adequate school access to technology to be used in the study.

Additional Comments

Teachers participating in the project made the following observations:

- Technology provides additional ways for teachers to meet a range of student learning needs.
- Higher level thinking skills can be developed when technology is used.
- Using technology fosters co-operation and collaboration among students.
- Students are motivated when technology is used.

TELUS LEARNING CONNECTION (TLC): AN EDUCATIONAL INTERNET ALLIANCE

School/Jurisdiction:
Provincial Initiative (all jurisdictions participating)

Address:
Floor 6B, 10020–100 Street
Edmonton, AB T5J 0N5

Contact Person: Catherine Kullman, Team Leader

Telephone: (780) 493–4816
Fax: (780) 493–3115
E-mail: catherine@2learn.ca

Web site: <http://www.2Learn.ca>

Timeframe: September 1997–June 1999

Need Being Filled
In-service opportunities for Alberta teachers and a vehicle for accessing and sharing online resources, ideas and tutorials.

Professional Development Activity
The TELUS Learning Connection (TLC) is an educational Internet alliance of Alberta Education, the TELUS Bright Futures Foundation, The Alberta Teachers' Association, the College of Alberta School Superintendents and the Alberta School Boards Association. This initiative is providing opportunities for teachers throughout the province to participate in an Internet in-service program, facilitated through a cascade model delivered by 250 TLC teacher-leaders. The web site at <www.2Learn.ca> is created "by teachers, with teachers and for teachers" and provides opportunities for identifying and sharing quality curriculum resources, Internet project collaboration, mentorship through an on-line forum, research and professional development. The TLC initiative supports many of the illustrative examples attached to the *Information and Communication Technology, Kindergarten to Grade 12: Interim Program of Studies.*

What It Took to Make This Activity Work
The steps involved in making TLC work are the development of the original concept, the creation of an Alliance Board, the secondment of the core team of five teachers, the development of the TLC concept and the adaptation of a cascade PD model, the creation of a dynamic web site, the support of all jurisdictions in the province, the five-day in-service training of 250 teacher-leaders and the continued mentorship and support of those 250 teacher-leaders at a local and provincial level.

Materials and Resources
The five alliance partners provided $2 million in funding.

APPENDIX B
RELATED ALBERTA EDUCATION RESOURCES

Computer Network Security: Best Practices for Alberta School Jurisdictions (1999).

Developing A Three-Year Technology Integration Plan: A Resource for School Jurisdictions (1998).

FOIPP and Technology: Best Practices for Alberta School Jurisdictions (1999).

FOIPP and Technology Highlights: Best Practices for Alberta School Jurisdictions (1999).

Illustrative Examples to Accompany Information and Communication Technology, Interim Program of Studies, Grade 1 to Grade 6 (1998).

Illustrative Examples to Accompany Information and Communication Technology, Interim Program of Studies, Grade 7 to Grade 9 (1998).

Illustrative Examples to Accompany Information and Communication Technology, Interim Program of Studies, Grade 10 to Grade 12 (1998).

Implementing and Managing Web Site Development in Education: Best Practices for Alberta School Jurisdictions (1999).

Information and Communication Technology, Kindergarten to Grade 12, Interim Program of Studies (1998).

Managing Technology Funding: Best Practices for Alberta School Jurisdictions (1999).

Network Design: Best Practices for Alberta School Jurisdictions (1999).

On-Line Learning: Best Practices for Alberta School Jurisdictions (1999).

Preparing to Implement Learner Outcomes in Technology: Best Practices for Alberta School Jurisdictions (1999).

Technical Support Planning: Best Practices for Alberta School Jurisdictions (1999).

Technology Implementation Review, Grande Yellowhead Regional Division No. 24 and Wolf Creek Regional Division No. 32: Best Practices and Key Learnings with Respect to Technology, Its Implementation and Management in Education (1997).